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FIRST ANNUAL REPORT

OF THE

SUPERVISING SURGEON

OF THE

MARINE HOSPITAL SERVICE OF THE UNITED STATES.

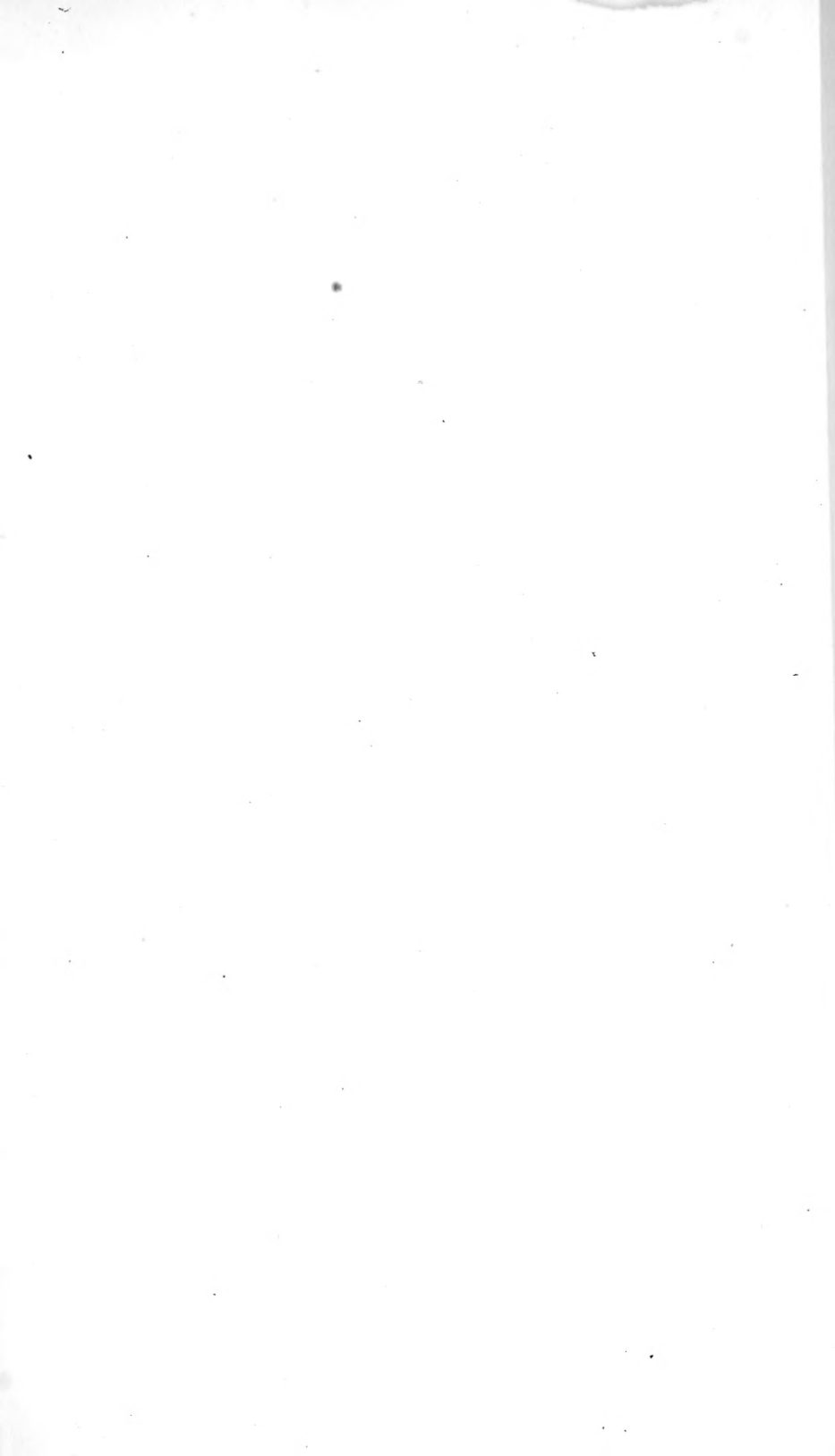
FOR THE YEAR 1872.

CONTAINING A BRIEF HISTORICAL SKETCH OF THE SERVICE FROM THE
DATE OF ITS ORGANIZATION IN 1798.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1872.

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REPORT
OF THE
SUPERVISING SURGEON

OF THE
MARINE HOSPITAL SERVICE OF THE UNITED STATES.

BUREAU OF U. S. MARINE HOSPITAL SERVICE,
Washington, D. C., November 15, 1872.

SIR: I have the honor herewith to submit a report of the operations of the Marine Hospital Service of the United States during the fiscal year ending June 30, 1872, prefaced by a brief history of the service from the date of its organization.

I am, sir, very respectfully, your obedient servant,

JOHN M. WOODWORTH,
*Supervising Surgeon of the Marine Hospital Service
of the United States.*

Hon. GEORGE S. BOUTWELL,
Secretary of the Treasury.



HISTORICAL.

In the year 1798 a law was enacted by Congress imposing a tax of twenty cents per month on seamen employed on American vessels engaged in the foreign and coasting trades, to be collected by the several collectors of customs, and out of the fund thus created the President of the United States was authorized to provide for the temporary relief and maintenance of sick and disabled seamen in hospitals, or in such other manner as he should direct; provided, however, that the moneys collected in each district should be expended therein.

The same act provided that when there should be a sufficient surplus, after defraying the expenses of temporary relief to seamen, it should be used in erecting marine hospitals.

The President was also authorized to appoint directors of marine hospitals at such ports as he should think proper, whose duty should be to provide for the accommodation of sick and disabled seamen, and to direct the expenditure of the fund. No appointments of directors appear to have been made, owing, probably, to the fact that no compensation was allowed except for actual expenditures incurred in the discharge of the duties imposed by the act.

The year following the passage of the first act, the law was so extended as to embrace the officers and seamen of the Navy, who continued thereafter to receive the benefits of the fund, to which they contributed in common with the merchant marine until the establishment of a separate fund for the Navy, February 26, 1811.

UNITED STATES MARINE HOSPITALS IN OPERATION IN 1802.

The Secretary of the Treasury, in a report to Congress dated February 16, 1802, stated that marine hospitals, exclusively appropriated to seamen, had been altogether established and solely supported out of the marine hospital fund at Norfolk, Boston, Newport, and Charleston, South Carolina; but that the hospital at Newport had recently been discontinued.

No other mention of a hospital at Newport appears to have been made, which encourages the belief that the hospital at that port must have been of a temporary character.

The first marine hospital, established under the act of 1798, was located at Washington Point, Norfolk, Virginia, and was purchased in the

year 1800. During the years 1802 and 1803 a marine hospital was built for the port of Boston, and was located in Charlestown, on the right bank of the Mystic river. The building, which was constructed of wood, in the form of an L, and which is still standing, was transferred to the Navy Department in 1824, and a site was selected at Chelsea for a new hospital, which was built in 1826-'27, of stone.

The expenditures attending the establishment of hospitals at Norfolk and Boston were defrayed from the fund resulting from the tax imposed upon seamen.

— The hospital at Charleston, South Carolina, referred to by the Secretary of the Treasury in 1802, appears not to have been a government hospital, as a marine hospital at that port was first opened to receive seamen in the year 1834. In June, 1802, Mr. Gallatin, then Secretary of the Treasury, proposed to the City Council of Charleston that they should take charge of such sick and disabled seamen as might apply for relief at that place, for which they were to receive the hospital dues collected at their port, and \$15,000 out of the general hospital fund, for the erection of a marine hospital. The same proposal, which was renewed in 1803, was accepted November 2, 1804, with the provision, made on the part of the council, that the city should be allowed to levy a duty on tonnage of vessels to supply any deficiency that might result from building and maintaining the hospital. The City Council assumed the charge of sick and disabled seamen at the port of Charleston in April, 1805, and, one year thereafter, Congress gave its assent to an Act of the Legislature of South Carolina, imposing a tonnage duty of six cents on vessels entering Charleston from any foreign port, which was afterwards increased to ten cents. No further steps appear to have been taken toward the erection of a hospital at Charleston until 1815, when Mr. Dallas, then Secretary of the Treasury, purchased a site at Hampstead for \$5,500, paying for the same out of the marine hospital fund. Years passed on, and, in 1830, Congress appropriated \$25,000 for a hospital, \$12,050 of which were paid to the City Council for interest on \$15,000, from January, 1818, to May, 1830, for indemnity for damages sustained from being obliged to provide a building for a hospital in consequence of the failure of the Treasury Department to furnish \$15,000 for the erection of a marine hospital, according to the proposition of the Secretary of the Treasury made in 1802.

In 1831, work was commenced on the site which had been provided at Hampstead sixteen years before, but as no secure foundation could be obtained without the driving of piles, the site was abandoned and another was selected in the city of Charleston, where a hospital was finally completed in December, 1833, of which the City Council was

notified to take charge and assume the care and management, as previously provided.

Before taking charge of the hospital, the City Council appointed a committee to examine the building, who, in their report thereon, represented that the roof leaked in several places, that the piazza floors, six in number, were so laid as to throw the water on the building instead of throwing it off, thereby keeping the walls damp to such an extent as to be conspicuous on the plastering within. Several other serious defects were represented to exist. The leasing of the marine hospital at Charleston to the city authorities appears not to have been attended with happy results, as seamen made complaints to the Department that they had been discharged from the hospital and the rooms appropriated to other purposes.

APPLICATION OF THE HOSPITAL FUND AND CHARACTER OF HOSPITAL ACCOMMODATIONS.

For nearly forty years after the establishment of the marine hospital service, the expense attending the maintenance of sick and disabled seamen had to be met out of the fund created by the tax upon seamen. The demands for relief far exceeded the resources at command, as during that time few deficiency appropriations were made by Congress; hence, various restrictions were from time to time imposed, to keep the disbursements within the capacity of the fund. Seamen afflicted with chronic or incurable diseases were altogether excluded from relief, and only those admitted to its benefits who were expected to be able to return to duty in a short time, and who were in helpless circumstances. In no case was relief allowed to be extended beyond a period of four months. In places where there were no public or local hospitals, and where more advantageous terms could not be made, medical charges were restricted to 20 cents per diem, with boarding, lodging, nursing, and washing at \$2 50 per week. An addition, however, of twenty per cent. to these amounts was made for all districts south of the Potomac.

Nearly every letter of the Department written during the above period, and later, in relation to relief, enjoined upon Collectors to keep the expenditures of the fund within the lowest limit. With such meagre compensation, only the poorest fare and accommodations could be expected, and in many instances no others were furnished. The Secretary of the Navy, in a communication to Congress, dated December 24, 1810, said of one of the hospitals devoted to seamen:

"To give you some faint idea of what is called the hospital at this station, imagine to yourself an old mill, situated upon the margin of a mill-pond, where every high tide flows, from twelve to fifteen inches, upon the lower floor, and there deposits a

quantity of mud and sediment, and which has no other covering to protect the sick from the inclemency of the season than a common clap-board outside, without any lining or ceiling on the inside."

It was claimed that the fund was to be considered as auxiliary to the provision made by the municipal authorities, rather than as a full compensation for the relief which was due to the wants of sick and disabled seamen. In view of the inadequacy of the fund, a more liberal ruling was impracticable.

The administration of the fund on this principle worked the greatest hardships in the new cities and towns which sprang up on the banks of the western lakes and rivers, where few accommodations were to be had for the care of sick strangers left helpless upon their shores. Those who engaged in the commerce of the western rivers were subjected to climatic changes that were to them very pernicious. The numbers who perished in the long-descending voyages of the flat-bottomed boats which left the upper waters of the Mississippi and its tributaries, in summer and early autumn, to find a market for the fruits of their toil, at New Orleans, were very great. Nothing was more common than for two out of the five hands who generally managed those boats to die; and it sometimes happened that the whole crew perished from disease, and that the boat with its cargo was left deserted.

The steamboats ascending the Mississippi and its tributaries brought up every year a great number of deck passengers, chiefly the sons of farmers returning from their flat-boat voyages, many of whom died on board, while others were left on shore at the river towns helpless and among strangers. The cholera epidemic of 1832 and 1834 added greatly to the catalogue of ills. Moved by a feeling of common humanity for the large class of our young men who had surrendered the endearments of a life spent at home, and united their fortunes with strangers by embarking in the more daring, precarious, and toilsome interests of commerce—a pursuit, more than most others, beset with temptations to risk of health and life, to recklessness of character and insensibility to future wants—sensible also of the sufferings attendant upon such an improvident life, whole communities, both on the seaboard and in the interior districts, petitioned Congress for additional appropriations and the enactment of laws providing increased facilities for the relief of this unfortunate class. From one port it was reported that no better place could be offered to sick seamen than the warehouses and deserted tenements along the wharf; from another, that they had to be sent to the city almshouse, which was also connected with a penitentiary for common vagrants and petty convicts; and from another, the sad story

was told that seamen, sick with various diseases—cholera, small pox, &c.—were often forced promiscuously into the same chamber, where the dying and the dead were alike neglected.

PROVISION FOR MARINE HOSPITALS ON THE WESTERN WATERS.

The appeals, made alike to the munificence of the Government and to its high obligation to protect and cherish the interests of commerce, were not unheeded by the representatives of the people. Congress passed an Act, which was approved March 3, 1837, authorizing the Secretary of War to appoint a Board of Medical Officers of the Army to select and purchase sites for marine hospitals on the Mississippi and Ohio rivers and Lake Erie. The board appointed in pursuance of the Act, consisting of Surgeon B. F. Harney and Assistant Surgeons H. L. Heiskell and J. M. Cuyler, made their report to the Secretary of War in November, 1837, having selected sites, ranging from eight to eighteen acres in extent, at the ports of Natchez, Mississippi; Napoleon, Arkansas; St. Louis, Missouri; Paducah and Louisville, Kentucky; Wheeling, Virginia, and Cleveland, Ohio. The board recommended that the buildings to be constructed should be planned with a view to future enlargement, without injury to symmetry, &c. It is a significant fact that the plans for marine hospitals, drawn by Mr. Robert Mills, architect, in the year 1837, have been followed by the Government, without material change, down to the hospital now being constructed at Chicago, Illinois. Marine hospitals were subsequently built at all the ports recommended by the Army Board, except Wheeling. Pittsburg claimed and finally obtained the hospital at that port instead of at Wheeling. Considerable delay in erecting hospitals at the points selected on the western waters appears to have resulted from placing the subject under the direction of the Secretary of War. The Secretary of the Treasury, in a letter addressed to the chairman of the Senate Committee on Commerce, dated May 3, 1844, said, in reference to an appropriation for a marine hospital at Cleveland: "This Department has no information as to what has heretofore been done in the premises, the subject having been placed by the Act of May 3, 1837, under the direction of the Secretary of War."

The hospitals at the ports named were constructed at intervals between the years 1845 and 1851. Prior to the first-named date, hospital buildings were commenced at New Orleans and Mobile.

HOSPITAL AT MACDONOUGH, OPPOSITE NEW ORLEANS—(SOLD.)

In the year 1837, a site upon which to erect a marine hospital for the port of New Orleans was purchased at Macdonough, on the right bank of the Mississippi river and opposite New Orleans. After the purchase was made, it was reported to the Department that the site was objectionable because of its proximity to ship-yards and slaughter-houses; but this information seems not to have prevented the work of erecting the hospital, which was commenced in 1838, and, after expending over \$30,000 thereon, the work was discontinued until 1841, when \$7,350 were expended for work necessary to protect the building against the weather. Additional appropriations were made and work on the building was again commenced in 1845; and, although the hospital was reported as completed in 1849, extensive alterations were required in the following year, making the total expenditure \$122,772 70.

The hospital was first opened for the reception of patients in 1849, (?) and was continued in use until early in June, 1858, when it was abandoned, and the patients were removed to the United States barracks below the city of New Orleans, in consequence of an inundation of the marine hospital grounds by the overflow of the Mississippi river. After the hospital was vacated, a watchman was placed in charge of the building and continued on duty until the breaking out of the war. Such remnants of the building as remained after the close of the war were sold in 1866, for the sum of \$300, but the amount does not appear to have been paid into the Treasury.

SECOND HOSPITAL AT NEW ORLEANS—(UNFINISHED)

Five years after the hospital at Macdonough, which it had required about twelve years to complete, was first occupied, and while it was in successful operation, a site for a second marine hospital for New Orleans was selected in a swamp back of the city, and the erection thereon of an immense cast-iron hospital was commenced in 1856. Notwithstanding the preparation for a foundation for the building by the driving of piles, the walls of a portion of the structure sunk about two feet before completion, and had to be reconstructed. The work on the hospital building was suspended in July, 1860, after more than a half million of dollars had been expended. During the war a large amount of work was done on the building by the Quartermaster's Department of the Army to fit it for a military hospital, including the erection of a kitchen, and the flooring of the entire building. Notwithstanding the inauguration of a system of drainage, and the improvement of the grounds resulting from filling up with decaying vegetation during the seven-

teen years which had elapsed since the purchase of the site, together with the more substantial sanitary improvements made under the military command of General Butler, the first successful Health Officer of New Orleans, the site is still an unhealthful, and consequently an improper, locality for a hospital.

To complete the building in accordance with the original plans would probably require an additional expenditure of \$200,000. The building has never been occupied as a marine hospital, and it is better that it should be suffered to rust away than to try the experiment.

HOSPITAL AT MOBILE—(LEASED.)

In 1837 a site was purchased in Mobile upon which to erect a marine hospital, but the title proving defective, a new location was obtained in 1838, and work was commenced on the building in the following year, which was completed in March, 1843. During the war of the rebellion all of the outfit of the hospital disappeared, and nothing remains that can be claimed by the Government except the old building and grounds. The hospital is at present leased to Dr. O. L. Crampton, who has the care of the marine patients and management of the hospital. It is consequently designated a hospital of Class II. The building is old, and unworthy of any considerable outlay for repairs.

HOSPITAL AT PITTSBURG, PENNSYLVANIA—(IN USE.)

A site for a marine hospital for the port of Pittsburg was purchased as early as 1842, at a point on the Ohio river below Alleghany City, but the hospital was not commenced until 1845. After expending the small appropriation available at that time, the work was suspended until 1849, when it was resumed. The building was completed in 1851.

The hospital, which is still in use, is considerably dilapidated, but the main objection to it is its location in the midst of manufacturing establishments. There is a blast-furnace on one side of the grounds, and a railway-iron rolling mill on the other; so that, no matter which way the wind blows, the hospital is continually filled with soot and smoke. The service at this post is small. Dr. J. Wilson Wishart is the present surgeon in charge.

HOSPITAL AT LOUISVILLE, KENTUCKY—(LEASED.)

A site for a marine hospital at the port of Louisville was selected, in 1837, by the Board of Army Surgeons appointed for the purpose. The purchase of the grounds was made in 1843, and in 1845 and 1846 one-third of an appropriation of \$25,000, made for the erection of hospitals

at Pittsburg, Louisville, and Cleveland, was expended in the partial construction of one in Louisville. The funds being exhausted, the work of erection was suspended, but was commenced again in 1849, and the hospital was completed in September, 1851, and was opened for the reception of sick and disabled river-boatmen in April, 1852.

After the breaking out of the war the hospital was discontinued, but has since been opened as a hospital of Class II.

The service has greatly increased at this port during the past few years.

HOSPITAL AT CLEVELAND, OHIO—(IN USE.)

A site was selected for the Cleveland marine hospital in 1837, and was purchased in 1844, by authority of the Act of August 29, 1842. A small amount of work was done on the new hospital in 1845, but it was not until 1849 that the erection of the building was begun in earnest.

The hospital was opened for the reception of patients in April, 1852, although at that time only partly completed. The hospital building, which is of cut stone, is finely located, and is under successful operation at the present time, with Dr. J. F. Armstrong as Surgeon in charge.

HOSPITAL AT NATCHEZ, MISSISSIPPI—(LEASED.)

The location of the Natchez hospital was selected by a Board of Army Surgeons in 1837.

In August, 1842, an appropriation was made for the purchase of the grounds, which were obtained in 1845.

The erection of the hospital was commenced in July, 1849, but the prosecution of the work was delayed in consequence of an inundation of the entire site, which occurred several times during the subsequent year. The building was completed in May, 1852, and was opened for the reception of patients in August following. Since the war, the hospital has been leased to the State of Mississippi, the State agreeing to care for the marine patients, in consideration of the use of the hospital, free of charge. The hospital service of Natchez was never large enough to require a marine hospital. At present, there is no service at that port. During the past year the Collector reports that he has not admitted a single seaman to hospital.

HOSPITAL AT KEY WEST, FLORIDA—(IN USE.)

Provision for a marine hospital at Key West, Florida, was made June 15, 1844, and a brick building of sufficient size to accommodate about fifty patients was completed in April of the following year.

The hospital was partially destroyed by a hurricane, October 11, 1846, but was repaired early in 1847. The building and grounds have suffered serious injury from storms several times since the hurricane of 1846.

The hospital is still in operation, and is in charge of Dr. Robert D. Murray, who has recently been appointed Surgeon. The service has always been small, and the hospital one of the most expensive to maintain, in consequence of its isolated condition on an island.

HOSPITAL AT OCRACOKE, NORTH CAROLINA—(NOT IN USE.)

The establishment of a marine hospital on the island of Ocracoke, off the coast of North Carolina, was authorized by Act of August 29, 1842. A site was selected at Ocracoke Inlet in 1843, and a hospital building, of wood, was commenced in 1846, and completed in April, 1847. The hospital was used several years for the accommodation of the few seamen who required relief at that point. It does not appear, from the records of the Department, when the hospital was abandoned.

The property consists of ten acres of land, and two buildings which are rapidly going to decay. An effort was made to sell this property in 1869. Eight hundred dollars was the highest bid obtained, which was rejected by the Department.

HOSPITAL AT PADUCAH, KENTUCKY—(BURNED.)

A location for a marine hospital at Paducah, Kentucky, was selected in December, 1842. The hospital building was commenced in 1849, opened for the reception of patients in the spring of 1852, and was continued in operation until October, 1861, when the hospital was taken possession of by the military authorities. It was burned in 1862, which was a fortunate disposition of the hospital, as the service at Paducah never was sufficient to require a marine hospital.

Since the destruction of the building, only one application for relief has been made at that port, which occurred in 1870.

The hospital grounds have been sold.

HOSPITAL AT NAPOLEON, ARKANSAS—(DESTROYED.)

Napoleon was selected as a location for a marine hospital by the Board of Army Surgeons who visited the Western waters for that purpose, in 1837. An appropriation was made in 1842 for the purchase of a site, and, early in 1849, Colonel Long, of the U. S. Topographical Engineer Corps, was charged with the erection of the hospital building. Notwithstanding that officer reported unfavorably in reference to the

location selected, by calling attention to the liability of its being inundated, and to the consequent probable destruction of the grounds, by the encroachment of the Arkansas river on one side and the Mississippi on the other, the work of erection was commenced late in the year 1849, and, after being greatly delayed by frequent overflows, was completed and opened for the reception of patients on the first day of January, 1855. The hospital was continued in use until the breaking out of the rebellion, when all information from the locality ceased for a time, during which period the hospital appears to have gone into disuse for sick seamen. In 1864-1865, the hospital was occupied by the local courts, and as a hotel, and in 1868, the grounds were washed away and the building fell into the river.

During the occupation of the hospital, it was brought into use chiefly on occasions of steamboat explosions, but, at the time of its destruction, it was not required for the purpose for which it was built.

The remnants of the wreck were sold for \$30.

FIRST HOSPITAL AT CHICAGO, ILLINOIS—(BURNED.)

A portion of the land adjacent to old Fort Dearborn, in the city of Chicago, was set apart for marine hospital purposes by the Act of August 3, 1848, and provision was made in June of the following year for the erection of a hospital building, which was commenced in the fall of the same year, and opened for the reception of seamen in the spring of 1852. In 1864, the hospital and grounds were sold, but possession was retained, and the premises had not been surrendered at the time of the destruction of the building and contents by the great fire of October, 1871.

The hospital cost \$64,070 98, and sold for \$132,000.

SECOND HOSPITAL AT CHICAGO, ILLINOIS—(UNFINISHED.)

The Act of June 20, 1864, authorizing the sale of the old marine hospital at Chicago, also provided for the purchase of a more eligible site, and for the erection thereon of a new hospital building. A site was selected at a point on the lake shore, about five miles north of the harbor, which was purchased in January, 1867, and the hospital building, which was commenced shortly thereafter, is at the present time nearly completed.

It is the finest structure of its kind in the country, and possesses many features which make it far superior to the marine hospitals hitherto constructed. Care has been given to the ventilation of the wards, and the heating apparatus and laundry are provided for in a separate building.

The locality is objectionable on account of its distance from the port. It is believed that one-fourth of the amount which has already been expended, and the additional amount required to complete the present building and fit it for occupation, would have been sufficient to construct a hospital which would meet the wants of the service equally well.

It is deemed advisable, particularly for sanitary reasons, not to occupy the new hospital before spring, even if it should be completed during the winter. Since the burning of the old hospital, good accommodations have been provided for the seamen in the Mercy Hospital, and Dr. E. O. F. Roler, as superintending surgeon, has had charge of the service at this port.

HOSPITAL AT ST. LOUIS, MISSOURI—(IN USE.)

Although the establishment of a marine hospital at St. Louis was recommended by the Board of Army Surgeons, in 1837, and an appropriation for the purchase of a site was made in August, 1842, it was not until March, 1850, that steps were taken to carry forward the work. A site was obtained from the War Department, and the erection of a large brick hospital was commenced. It was completed and occupied about the first of July, 1858.

During the war, the hospital was put to the additional use of sheltering sick and wounded soldiers, and, to increase its facilities, pavilion wards were built by the Army, and are now used during the summer months for seamen. The hospital and grounds are at present in good condition, and are under the charge of Dr. S. H. Melcher.

HOSPITAL AT SAN FRANCISCO, CALIFORNIA—(NOT IN USE.)

The deserted hospital building situated on Rincon Point, in the city of San Francisco, was commenced in 1851, and was opened to marine patients in 1854. The hospital was very large, strongly built, and luxuriously furnished. The building was abandoned in 1868, on account of a slight injury which it sustained by reason of an earthquake. The injuries consisted of the throwing down of a chimney and cracking of the plastering in one end of the building. Since the abandonment of the hospital, it has gone to ruin to such an extent as to make the repair of the building impracticable, and consequently of no further use to the service.

Marine patients are at present maintained by contract in a local hospital provided by private parties. The medical management of this hospital, and of the service of the port, are under the charge of Dr. C. N. Ellinwood, appointed by the Department.

HOSPITAL AT EVANSVILLE, INDIANA—(SOLD.)

Provision for a marine hospital at Evansville, Indiana, was made in 1850, and a brick hospital building erected, which was completed in 1856. The hospital and grounds were sold in 1867 for about one-sixth of their original cost.

HOSPITAL AT PORTLAND, MAINE—(IN USE.)

The site selected for the marine hospital at Portland is one which possesses great natural beauty. The hospital, which was authorized by the Act of August 31, 1852, although reported as completed in December, 1856, was not occupied until July, 1859. The building has had extensive repairs since it was first occupied, and still requires an outlay of twelve or fifteen thousand dollars. The building is imposing in appearance, but was badly planned and defectively constructed. It would, in the opinion of the Supervising Surgeon, be a wiser plan to build a pavilion hospital on another part of the grounds, to cost about twenty thousand dollars, than to expend twelve or fifteen thousand dollars in repairing the old building, which has already cost \$122,590 88.

The service at Portland is small. Dr. C. S. D. Fessenden has been the Surgeon in charge since 1861.

HOSPITAL AT VICKSBURG, MISSISSIPPI—(SOLD.)

A marine hospital at Vicksburg was completed in June, 1856, and was opened for the reception of patients in that year. The building escaped destruction at the siege; and after the capture of the city by the Union Army, the hospital was taken possession of by the Medical Department of the Army.

The hospital and grounds were sold in 1870 for \$20,257 52.

Seamen are at present cared for in the State hospital.

PENSACOLA, FLORIDA.

In August, 1854, an appropriation of \$20,000, was made for the purpose of erecting a marine hospital at Pensacola, Florida. A marine hospital has not been built, neither has a site been purchased. At the time the appropriation was made, the Government was occupying, for a marine hospital, a small building, which had been rented for the purpose. The building was consumed by fire in November, 1854, and another was obtained in its stead. At present, the seamen are provided for in a private local hospital. It is believed that the service at this port is not of sufficient magnitude to justify the establishment of a marine hospital by the Government.

HOSPITAL AT DETROIT, MICHIGAN—(IN USE.)

The marine hospital at Detroit is well located, and in a good state of preservation. The hospital was built in 1856-57, and was opened for the reception of patients in November of the last-named year. The aggregate cost of the property is \$182,665 48.

Dr. James A. Brown is the present Surgeon in charge.

HOSPITAL AT CINCINNATI, OHIO—(SOLD.)

In January, 1856, a site was purchased in the city of Cincinnati, for the purpose of erecting thereon a marine hospital. It appears from the records of the Department that certain buildings were already on the grounds, at the time of the purchase. A hospital was, however, erected on the usual plan, and completed in 1860, at an expense of \$182,665 48. Upon the breaking out of the war, Dr. Mussey, of Cincinnati, requested permission to take possession of the hospital, and fit it up for the reception of wounded soldiers. The request was granted, and possession of the premises was retained by the War Department during the continuance of the war.

In 1866, the building and grounds were sold for \$70,500, and, immediately thereafter, an arrangement was made for the care of sick and disabled seamen within the hospital, which was never used for the purpose for which it was intended, while it remained in the possession of the Government.

HOSPITAL AT BURLINGTON, IOWA—(SOLD.)

The establishment of a marine hospital at Burlington, Iowa, was authorized by the Act of August 4, 1854. A site was purchased in January, 1856, and the hospital was completed in 1858. The Surgeon and employés were appointed in March of the last-named year, and every arrangement was completed for the reception of patients. The first seaman who appears to have availed himself of the advantages of the new hospital was admitted during the period from May 1 to December 31, 1861. Again, from September, 1863, to January, 1864, four seamen were admitted. In August, 1864, the management of the hospital was turned over to the Medical Director of the Department of the Northwest, and on the 23d of January, 1865, the Surgeon and employés were discharged, and the hospital was ordered to be closed. In the following month, all of the movable property was ordered to be sold, and, in 1867, the building and grounds were disposed of for the sum of \$6,000. The aggregate cost of this property was \$29,996 84.

HOSPITAL AT ST. MARK'S, FLORIDA—(TRANSFERRED TO WAR DEPARTMENT.)

A marine hospital was authorized by Act of August 4, 1854, to be established at St. Mark's, Florida. In the spring of 1859 the hospital was completed, and was organized by the appointment of a surgeon, steward, matron, and other employes.

Prior to the breaking out of the war very few patients applied for relief, and, after that period, all reports ceased for a time. The building was not opened as a marine hospital after the close of the war. The War Department took possession of the building, and the property was finally transferred to that Department. The sum of \$25,758 was expended on the hospital.

HOSPITAL AT BURLINGTON, VERMONT—(SOLD.)

The marine hospital which was erected at Burlington, Vermont, in 1857-'58, at a cost of \$39,572 30, was sold in 1866, for \$7,164 41, having never been used for the purpose for which it was intended, in consequence of the lack of patients.

HOSPITAL AT WILMINGTON, NORTH CAROLINA—(SOLD.)

The marine hospital, built at Wilmington, North Carolina, in 1858-'60, at an expenditure of \$43,897 44, was sold in 1870 for the sum of \$4,020, having never been used as a marine hospital.

HOSPITAL AT GALENA, ILLINOIS—(SOLD.)

A marine hospital, at Galena, Illinois, was completed October 4, 1859, but was not organized and opened to receive patients until the spring of 1861. After keeping up the hospital organization for about four years and a half, much of the time with only one or two patients, and often with empty wards, the hospital was closed and all of the officers and employes were discharged, except the steward, who was retained to take charge of the building.

In 1868 the property was sold, for which the sum of \$6,321 08 has been received, and a note for \$1,000 yet remains unpaid. The property cost \$48,797 58.

THIRD HOSPITAL FOR THE PORT OF BOSTON, MASSACHUSETTS—(IN USE.)

The marine hospital at Chelsea, Massachusetts, completed in 1827, and paid for out of the marine hospital fund, was authorized to be sold by Act of March 3, 1855. The same Act provided for the establishment of a new marine hospital, and, in accordance therewith, ten acres of land,

belonging to the grounds of the Navy hospital at Chelsea, were set apart as a site for the new hospital, which was erected at an aggregate expenditure to date of \$393,452 48. The hospital building, which is one of the largest of its class, is finely located and is imposing in appearance, but was badly planned, both for health and economical management. The ventilation is poor, and the floors are made of inferior material, full of cracks and difficult to cleanse. One of the results of these defects is the prevalence of erysipelas among surgical cases treated in the hospital; hardly a wounded patient escaping the extra risk to life to which this complication subjects him. The results obtained are believed to be fair expositions of the influence of ill-constructed wards, as the patients, under Dr. A. B. Bancroft, the surgeon in charge, are well cared for and nourished.

HOSPITAL AT PORT ANGELES, WASHINGTON TERRITORY—(SOLD.)

It appears from the records of the Register's office that the sum of \$165 was paid into the Treasury, March 10, 1869, on account of sale of marine hospital at Port Angeles, Washington Territory. The buildings were sold in accordance with instructions contained in Department letter of April, 1868, at the time the port of entry was changed to Port Townsend; but, up to date, no record has been found of the establishment of a marine hospital at this port.

UNITED STATES MARINE HOSPITALS—SUMMARY.

The foregoing account of United States marine hospitals shows that thirty-two have been established since the organization of the service in 1798, at an aggregate cost of \$3,214,518 95. Ten marine hospitals are in present use for the accommodation of sick and disabled seamen, seven of which are conducted solely by the Government, and three leased to private parties. Two marine hospitals are unfinished; two have been abandoned; one was transferred to the War Department; one burned; one washed into the river; and fifteen were sold for the sum of \$376,879 60.

OTHER HOSPITALS DEVOTED TO SEAMEN.

Aside from the United States marine hospitals now in use, there are thirty-nine hospitals, at thirty-six different ports, which are owned by private or corporate parties, and are devoted, in whole or in part, to the accommodation of seamen. There are also thirty-four of the smaller ports where relief is furnished in extemporized hospitals—usually private dwellings.

SURGEONS AT THE LARGE PORTS.

At the ports of New York, San Francisco, New Orleans, and Chicago, four of the largest ports, "Medical Inspectors of Marine Hospitals" are stationed, whose duties are to superintend all matters relating to the marine hospital service of their respective ports; to admit the seamen to hospital, and discharge them therefrom when necessary; to prescribe for the trivial cases, and look after the collection of the hospital tax, &c.

The officers filling these positions are Dr. Heber Smith, at New York; Dr. E. O. F. Roler, at Chicago; Dr. Orsamus Smith, at New Orleans; and Dr. C. N. Ellinwood, at San Francisco. These gentlemen have been selected on account of their professional culture, and the results attained at their respective stations are evidence of their administrative ability.

THE REORGANIZATION OF THE MARINE HOSPITAL SERVICE.

An Act, approved by the President June 29, 1870, entitled "An Act to reorganize the marine hospital service, and to provide for the relief of sick and disabled seamen," increased the tax from twenty to forty cents per month, and provided that the same should be collected from each seaman employed on registered, enrolled, or licensed vessels of the United States. Fishing vessels and canal-boats are not included. The same Act also provided for the appointment of a Supervising Surgeon of the Marine Hospital Service of the United States, whose duty it is, under the direction of the Secretary of the Treasury, to supervise all matters connected with the service and with the disbursement of the fund provided by the Act. This office was first filled in April, 1871, by the appointment of the present incumbent.

That the marine hospital service had suffered from the lack of proper medical supervision, is a fact too apparent to be controverted. Many abuses had crept into the service which it was impossible to correct without the aid of a supervising officer versed in sanitary science, and familiar with the management of hospitals. Sensible of this need of the service, the present Secretary of the Treasury, pending the preparation and passage of the Act of June, 1870, availed himself of the advice of Surgeon J. S. Billings of the United States Army, who gave valuable aid to the service in the limited time he was able to spare from his duties in the office of the Surgeon General of the Army.

While it is believed that the following account of the operations of the service, during the last fiscal year, shows many improvements over the operations of former years, it is not claimed that the reorganization of the service is fully completed. That end, so desirable to be attained,

has necessarily been delayed in consequence of the limited clerical force allowed to transact the current business of the office, and the consequent demands in that direction upon the time of the Supervising Surgeon.

OPERATIONS OF THE SERVICE DURING 1872.

During the fiscal year ending June 30, 1872, four hundred and five thousand eight hundred and fourteen days of hospital relief were furnished to twelve thousand three hundred and two sick and disabled American seamen, being an average of thirty-two and nine-tenths days for each patient treated in hospital. Eight hundred and fifty-four seamen, afflicted with diseases not requiring rest and treatment in hospital, were relieved by medicine furnished them, making the total number of seamen relieved thirteen thousand one hundred and fifty-six.

Five hundred and twenty-one deaths occurred, or a fraction less than four per cent. of the number treated.

The total cost of the service for the fiscal year, exclusive of erecting and repairing hospital buildings, was \$396,263 11, being an average for each patient of 97.6 cents per day, against an expenditure of \$453,082 42, or an average of \$1 04 per day, incurred in the fiscal year ending June 30, 1871.

Hospital money collections for the last fiscal year amount to \$323,700 05, which is an increase of \$35,554 63 over the amount collected in 1871, under the operations of the same law.

DIFFERENCE IN THE COST OF THE SERVICE FOR 1871-72.

A comparison of the cost of the service for the fiscal years ending June 30, 1871, and June 30, 1872, shows a difference in favor of the last-named year of \$56,819 31, or 12½ per cent. diminished expenditures.

CAUSES WHICH LEGITIMATELY INCREASED THE EXPENDITURES IN 1872.

Notwithstanding the diminished expenditures, the facilities for affording relief have been considerably increased during the last year; relief having been furnished in seventy-two customs districts in 1871, and in eighty-one districts in 1872. The unusually large number of seamen affected with small-pox during the last year, owing to the prevalence of that disease throughout the country, has augmented the total expenditures, as well as increased the average daily cost of hospital relief; it being much more expensive to furnish proper care and treatment to seamen suffering from contagious than from noncontagious diseases. The salaries of medical officers at several of the principal ports have also been increased one-half during the last year.

SOME OF THE CAUSES OF DIMINISHED EXPENDITURE IN 1872.

The diminished cost of the service during the last fiscal year is chiefly due to the following causes: It was formerly the custom at many of the ports to send to hospital nearly every applicant for relief; consequently, many were relieved who had not contributed to the fund, and who were, therefore, not entitled to its benefits, while others who had contributed to the fund were maintained in hospital, although the nature of their diseases did not render such relief necessary.

The first-named irregularity has been, to a great extent, corrected; and to reform the latter there has been inaugurated, during the last year, a system of out-door relief, as has been stated in a preceding paragraph, by which eight hundred and fifty-four seamen, afflicted with trivial diseases, not requiring rest and treatment in hospital, have been relieved by medicine only, the expense in each case not exceeding, on an average, the cost of a single day in hospital.

The introduction of the system of obtaining bids from different parties for supplying subsistence, medicines, &c., for the use of the marine hospitals, has been attended with favorable results. The commission of one per cent. allowed to Collectors of Customs since the organization of the service in 1798, not being in accordance with law, was abolished July 1, 1871, which has saved to the fund nearly \$4,000 during the last year.

MARINE HOSPITAL FUND—PAST AND PRESENT CONDITION.

The collection of hospital tax from seamen, at the rate of forty cents per month, since August 1, 1870, and twenty cents per month prior to that date, has been uninterrupted since the passage of the Act of 1798, with the single exception of 1837, in which year the tax was suspended and an appropriation of \$175,000 made to defray the expenses of hospital relief for that year.

As has been before stated, the fund resulting from the tax imposed upon seamen has never been sufficient to meet the demands upon it for relief.

Since 1840, Congress has made a deficiency appropriation each year, excepting for the years 1846 and 1854, ranging from twelve to two hundred and seventy-five thousand dollars. The Hon. Levi Woodbury, Secretary of the Treasury in 1836, in a letter addressed to the Chairman of the House Committee on Commerce, dated February 13, of that year, stated that the whole fund was only about \$63,000 annually, though the whole number of our seamen in the merchant service at that time was supposed to exceed seventy-five thousand, and, if all

had contributed to the fund, it would, in the opinion of Secretary Woodbury, probably have been more than doubled.

The amount of hospital money collected during the past fiscal year is greater than the amount obtained during any previous fiscal year; yet it is believed that not more than three-fourths of the *lawful* tax is actually collected at the present time. Forty cents per month for the time each seaman is employed should create a fund which, if judiciously expended, would make the service self-sustaining, except, perhaps, in case of a general epidemic.

REGULATIONS OF THE MARINE HOSPITAL SERVICE.

It is believed that the regulations of the marine hospital service have never been even approximately enforced until within the last fiscal year. The more strict adherence to the regulations has disclosed many defects in them, a number of which have been corrected by circular letters.

A thorough revision of the regulations is deemed essential, and it is the intention of the Supervising Surgeon to submit, for the approval of the Secretary, a revised edition, as soon as practicable.

SUPERVISION OF THE MARINE HOSPITAL SERVICE.

The Department work of the marine hospital service, which was formerly allotted to the Revenue Marine Division, has, under the Act for the reorganization of the marine hospital service, approved June 29, 1870, come under the immediate supervision of the Supervising Surgeon. In this branch of the service the Supervising Surgeon has been assisted by E. K. Whitaker, Esq., Reinhold Springsguth, Esq., and Dr. H. W. Sawtelle. In order to transact the rapidly-increasing business of the office, each of these gentlemen has not only declined the usual annual leave of absence, but has continued throughout the year to work overtime; Mr. Whitaker, in particular, having rendered additional service equal to about five days in each month. Although receiving but sixteen, fourteen, and twelve hundred dollars respectively, these gentlemen have cheerfully made these personal sacrifices without extra compensation.

RECOMMENDATIONS.

Proposed amendments to the Law.

I would respectfully recommend that Congress be asked so to amend the law regulating the marine hospital service as to include within its provisions the officers and seamen of the Revenue Cutters, Coast Sur-

vey vessels, vessels of the Engineer Corps of the Army, and of the Light-house Board. It is suggested that Yachts might properly be included, as the seamen employed thereon are usually selected from among those who are engaged, for a portion of the year, on merchant vessels, and who, during such time, come under the operation of the law.

The term "Seamen" should be defined so as to include all employés on such vessels as are subject to hospital tax.

FOREIGN SEAMEN.

I beg to invite your attention to Section 5 of an Act approved May 3, 1802, (2 Statutes, p. 193,) which fixes the charge for the care and treatment of foreign seamen at seventy-five cents per diem, and to suggest that Congress be asked so to amend the law as to allow the Department to regulate the charge at each port where there is a United States Marine Hospital, in order to cover the actual expense of food, medicine, and nursing. Under the operation of the present law, the loss to the fund, in consequence of maintaining foreign seamen, amounts to several thousand dollars per annum. This provision of an ancient statute works manifest injury in the administration of the service.

PROPOSED NEW HOSPITALS.

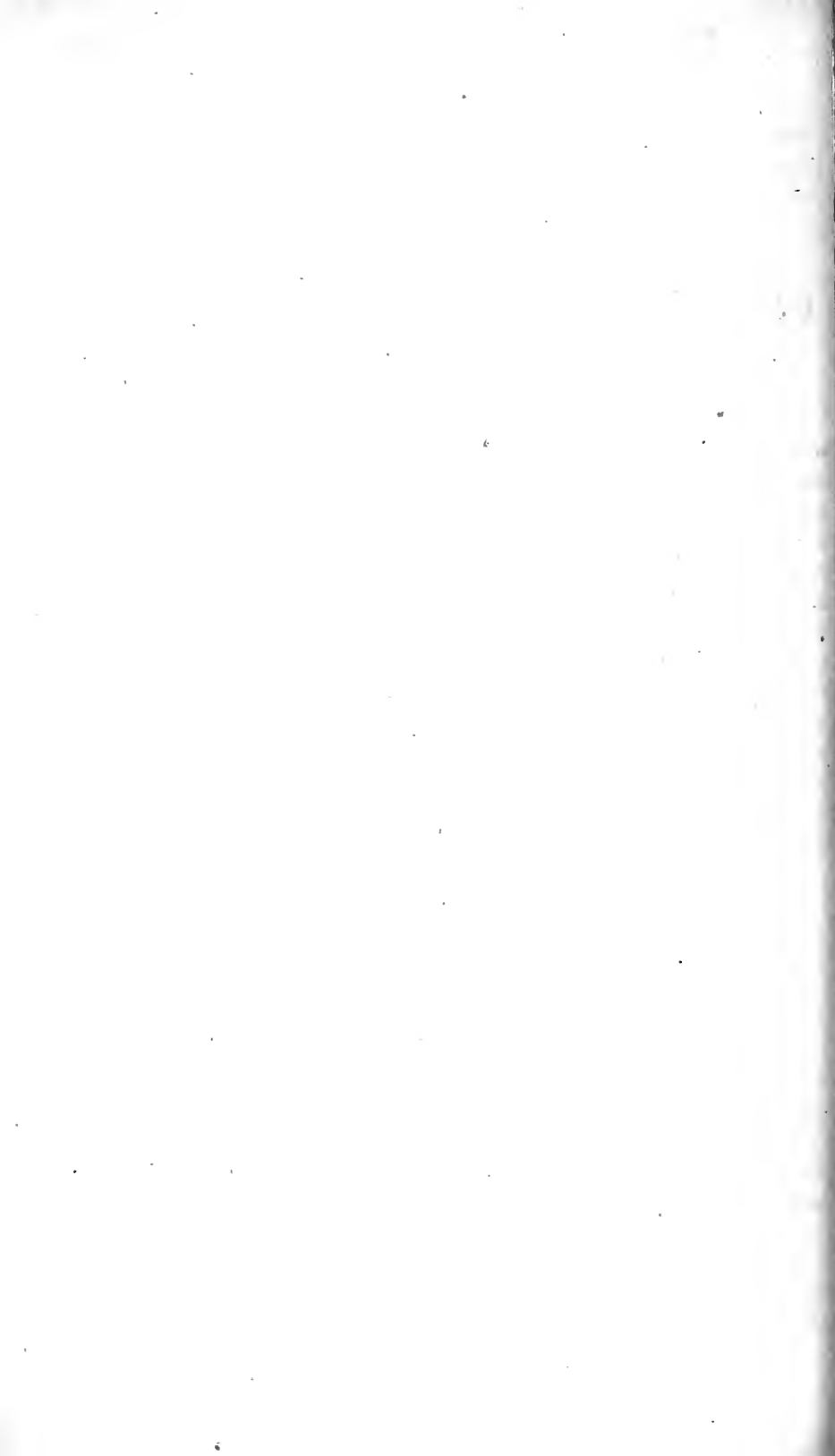
I respectfully recommend the purchase of a site convenient to the port of New York, and the erection thereon of a pavilion hospital of two-hundred-bed capacity. I also renew the suggestion, made last year, for the erection of a pavilion hospital on Angel Island, in the bay of San Francisco, and also one near Pittsburg, on a site to be selected for that purpose; the former to accommodate one hundred and fifty patients and the latter thirty patients. The present hospital for the port of Pittsburg, located near Alleghany City, is unfit for further use, on account of its unfavorable surroundings; but the land is valuable, and should sell for nearly double the amount that will be required both to purchase a suitable site and to pay for the erection of a new hospital.

I particularly favor constructing all the hospitals of wood, and destroying them after ten or fifteen years, both as a sanitary and an economical measure, and building new ones in their stead. The prime object to be attained is to secure favorable results in the treatment of diseases and injuries, an object which has been, in the past, subordinated to architectural design, and frequently to the favoring of certain localities.

A permanent building of brick or stone should be constructed, adjacent to and separate from each hospital building, to contain the heating apparatus and laundry. At New York and San Francisco there should be a residence for the Surgeon, separate from the hospital.

OLD HOSPITALS NO LONGER REQUIRED.

The present hospital buildings at Natchez, (Mississippi,) Ocracoke, (North Carolina,) New Orleans, and San Francisco are of no use to the service. The first two named are located at ports where no applications are received for relief, and the last two are unfit for use.



REPORT OF SURGICAL CASES

TREATED IN

UNITED STATES MARINE HOSPITALS.

In June, 1872, the Supervising Surgeon addressed a circular letter to the surgeons in charge of hospitals devoted, in whole or in part, to seamen, requesting reports of surgical cases to be made to the Department; and, in response thereto, detailed reports of upwards of four hundred cases of injuries and surgical operations have been received, from which the following report has been compiled, and is given as a nucleus of surgical facts for future reference. The present number of any particular class of cases is not considered sufficiently large to warrant a classification for the purpose of making deductions therefrom. The surgeons in charge of the hospitals at the following named ports have failed to respond to the circular letter of the Supervising Surgeon: Detroit, Michigan; Edgartown, Massachusetts; New York City, New York; Philadelphia, Pennsylvania; Pensacola, Florida; Providence, Rhode Island; Savannah, Georgia; San Francisco, California; Wilmington, North Carolina.

INJURIES AND DISEASES OF THE HEAD, FACE AND NECK.

I.—Abstract of a Case of Fracture of the Skull.

Seaman—was admitted to hospital at Brownsville, Texas, in 1872, suffering from extensive laceration of the scalp with a slight fracture of the skull, received while on duty, by being thrown into the sea by a wave and striking against some hard substance. He was rescued from the water, and Dr. N. H. Matas, the surgeon in charge, brought together the lacerated parts with common sutures, and applied cold-water dressings. In a short time the sutures sloughed away and the wound suppurated extensively, the patient having had syphilitic necrosis of the bones of the head for many years. He made a good recovery in about three months.

II.—*Report of a Fracture of the Parietal Bone.*

Seaman—was conveyed to hospital at Richmond, Virginia, in 1872, suffering from a fracture of the skull, with loss of voice and of the use of the extremities of one side. A few days subsequently, Dr. Hunter McGuire removed two pieces of the left parietal bone, near its anterior inferior angle, embracing the whole thickness of the bone, without the use of anæsthetics. The patient soon recovered the use of the foot and leg, and just before he was discharged from the hospital, two months from the date of injury, he began to use the hand and arm. He then visited Baltimore, Maryland, where Dr. Smith removed another small spicula of bone. Two months after leaving the hospital, he was able to speak distinctly, but slowly; his memory was defective, but improving; he had full use of his limbs, and his health was good.

III.—*Mention of a Case of Fracture of the Frontal Bone.*

Seaman—was admitted into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, suffering from the effects of a blow over the right frontal region. Three months after the reception of the injury, Dr. L. D. Gunter ætherized the patient, and, on removing a button of bone from the frontal sinus, with the trephine, found the internal table to be fractured. Erysipelas supervened, and the seaman died fourteen days subsequent to the operation.

IV.—*Note of a Case of Caries of the Mastoid Process.*

Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, in 1872, suffering from caries of the left mastoid process, of two years' duration. Dr. O. L. Crampton placed the patient under the influence of chloroform, and removed two buttons of bone, with the trephine, from the external table of the mastoid prominence. The patient recovered in seventy-six days.

V.—*Account of a Case of Laceration of the Scalp.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, prior to 1871, with a lacerated wound of the scalp, received fourteen hours previous to admission. Dr. Thomas J. Griffiths brought the parts together with sutures, and applied cold-water dressings. Erysipelas supervened. The patient recovered in one hundred and five days.

VI.—*Memorandum of a Wound of the Scalp.*

Seaman—was received into the United States Marine Hospital at Louisville, Kentucky, prior to 1871, suffering from a slight wound of the scalp, received four hours before admission, for which Dr. Thomas J. Griffiths applied simple dressings. The patient recovered in ten days.

VII.—*Note of a Case of Laceration of the Scalp.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from laceration of the scalp and hand, of eighteen hours' duration, for which Dr. Thomas J. Griffiths applied simple dressings. The patient recovered in forty-one days.

VIII.—*Minute of a Case of Concussion of the Brain.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from concussion of the brain, received six hours prior to his entry into hospital. Dr. Thomas J. Griffiths inserted a seton in the cervical region for the relief of the injury. The seaman recovered in four months.

IX.—*Note relative to a Fatty Tumor of the Scalp.*

Seaman—was admitted into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, with a fatty tumor situated over the occipital region. Dr. L. D. Gunter placed the patient under the influence of æther, and removed the tumor by excision. The seaman recovered in twenty-one days.

X.—*Mention of a Case of Hemiplegia.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering with hemiplegia, of sixteen days' duration. Dr. Thomas J. Griffiths placed a seton in the cervical region, and the patient recovered in one hundred and five days.

XI.—*Minute of a Fracture of the Inferior Maxilla.*

Seaman—was received into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from a simple fracture of the inferior maxilla, of thirty hours' standing. Dr. Thomas J. Griffiths applied a bandage, and the patient recovered in six months.

XII.—*Note of an Incised Wound of the Face.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, prior to 1871, for an incised wound of the face,

laying open a large portion of the soft tissues of one side. The wound was drawn together with adhesive straps by Dr. Thomas J. Griffiths, and the patient recovered in forty-seven days.

XIII.—*Minute relative to the Removal of One-half of the Superior Maxilla.*

Seaman—was admitted into the United States Marine Hospital at St. Louis, Missouri, in 1872, suffering from necrosis of the right superior maxilla, for which Dr. S. H. Melcher removed one-half of the bone without the use of anæsthetics. The patient recovered in two months.

XIV.—*Note relative to the Removal of Diseased Bone from the Face.*

Seaman—was admitted to hospital, in 1872, suffering from caries of the bones of the face, resulting from syphilis. Dr. E. Andrews, of Chicago, Illinois, placed the patient under the influence of a mixture of chloroform and æther and removed the diseased bone. The seaman recovered in seven weeks.

XV.—*Account of the Removal of a Tumor of the Face.*

Seaman—was admitted into the Marine Hospital at Cairo, Illinois, prior to 1871, suffering from an encysted tumor situated near the angle of the jaw. Dr. H. Wardner chloroformed the patient and removed the tumor by excision. The seaman recovered perfectly and was discharged in three weeks.

XVI.—*Notes relative to Two Cases of Epithelioma of the Lower Lip.*

CASE I.—Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, prior to 1871, suffering from epithelioma, involving the greater portion of the lower lip. Dr. R. W. Coale excised the diseased parts, and the patient recovered in seventeen days.

CASE II.—Seaman—was received into the United States Marine Hospital at Portland, Maine, prior to 1871, suffering from epithelioma of the lower lip, of three months' standing. The diseased parts were excised by Dr. C. S. D. Fessenden, the surgeon in charge. The patient recovered in two months. Dr. Fessenden reports that, four years subsequent to the operation, the patient was free from the disease.

XVII.—*Account of an Extirpation of the Eye-ball for Erysipelas.*

Seaman—was admitted into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, suffering from facial erysipelas. One month subsequent to his entry into hospital, Dr. L. D. Gunter ætherized the patient and enucleated the eye-ball. The seaman recovered.

XVIII.—*Report of a Case of Extirpation of the Eye-ball for Staphyloma.*

Seaman—was received into the Marine Hospital at Hyannis, Massachusetts, in 1872, suffering from staphyloma with sympathetic irritation of the opposite eye, the patient complaining of severe pain in the head. Dr. Peter Pineo, the surgeon in charge, placed the patient under the influence of æther and removed the globe of the eye by Bomet's method. The pain in the head ceased, and the patient made an excellent recovery in one month. The operator reports that an artificial eye is worn by the patient.

XIX.—*Account of a Case of Cataract.*

Seaman—entered the United States Marine Hospital at Louisville, Kentucky, prior to 1871, for cataract of eighteen months' standing. Dr. Thomas J. Griffiths, the surgeon in charge, placed the patient under the influence of chloroform and performed the linear operation successfully. The seaman recovered in about four months, with good sight.

XX.—*Minute of an Operation for Cataract.*

Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, in 1872, for the treatment of a cortical cataract of the left eye, of five years' standing. Dr. O. L. Crampton, the surgeon in charge, having placed the patient under the influence of chloroform, removed the cataract by extraction. The patient recovered in about one month, with sight partially restored; and when seen by the operator, a few months subsequently, the sight was still improving.

XXI.—*Mention of an Operation for Cataract.*

Seaman—was received into the Marine Hospital at Cairo, Illinois, prior to 1871, on account of a cataract of the eye. The cataract was successfully removed by extraction by Dr. H. Wardner, the surgeon in charge. The patient was discharged, improved, in one month.

XXII.—*Memorandum of an Operation for Cataract.*

Seaman—was admitted into the Marine Hospital at Cairo, Illinois, in 1872, suffering from a cataract complicated with glaucoma. Dr. H. Wardner placed the patient under the influence of chloroform and removed the cataract by extraction. The patient recovered in two weeks, with the sight of the eye but little improved.

XXIII.—*Abstract of an Operation for Artificial Pupil.*

Seaman—was received into the United States Marine Hospital at Mobile, Alabama, in 1872, to be treated for corneal opacity of the right eye resulting from ulcers of about one year's standing. Dr. O. L. Crampton placed the patient under the influence of chloroform and performed the operation of iridectomy. The seaman recovered in forty-five days, with the sight of the eye materially improved.

XXIV.—*Report of a Case of Iritis.*

Seaman—entered the Marine Hospital at Hyannis, Massachusetts, in 1872, having suffered from repeated attacks of iritis, resulting in closure of the pupil of one eye, opacity of the humors, and disorganization of the iris. The pupil of the opposite eye had nearly closed from the same cause, and the patient was nearly blind. Dr. Peter Pineo performed the operation of iridectomy without the use of anæsthetics. The operation was partially successful. The opacity of the humors permitted only a slight impression on the retina through the artificial pupil.

XXV.—*Account of a Case of Gunshot Wound of the Neck.*

Seaman—was admitted into the United States Marine Hospital at St. Louis, Missouri, in 1871, having received a gunshot wound in 1863, the ball still remaining lodged in the neck. Dr. S. H. Melcher, the surgeon in charge, removed the missile, through an incision, and the patient was discharged in a few days entirely relieved.

XXVI.—*Report of the Removal of a Tumor of the Neck.*

Seaman—entered hospital in Chicago, Illinois, in 1872, suffering from a tumor of the neck. Dr. E. Andrews placed the patient under the influence of a mixture of chloroform and æther and excised the diseased parts. The patient recovered in three weeks.

XXVII.—*Report of a Case of Fibro-Recurrent Tumor of the Neck Removed Successfully.*

Seaman—was received into the United States Marine Hospital at Mobile, Alabama, in 1872, suffering from a fibro-recurrent tumor, involving a portion of the sterno-cleido-mastoid muscle and adjacent tissues of the right side of the neck. This patient had been operated upon by Dr. Bullock, of Savannah, Georgia, twenty-five months previous to admission into hospital at Mobile, and had remained free from

any effects of the disease until two months prior to his last entry into hospital. He was placed under the influence of chloroform, and all recognized diseased structures were removed, together with the sub-maxillary gland, by Dr. O. L. Crampton, the surgeon in charge. The patient recovered in forty-three days.

INJURIES AND DISEASES OF THE TRUNK.

XXVIII.—*Note of the Removal of a Sarcomatous Tumor.*

Seaman—was admitted into the United States Marine Hospital at St. Louis, Missouri, in 1871, suffering from a sarcomatous tumor of eight months' duration. The tumor was removed by Professor J. B. Hodgen, M. D., and the patient was relieved. He died one year subsequently, however, of hæmatodes.

XXIX.—*Report of a Fatal Case of Senile Gangrene, from Monthly Sick Report of O. L. Crampton, M. D.*

Seaman William Freed was admitted into the United States Marine Hospital at Mobile, Alabama, October 15, 1871, on account of an injury of the back. Shortly after his reception into hospital, senile gangrene manifested itself, from which the patient died December 15, 1871. At the autopsy, a commencing aneurism at the arch of the aorta was revealed, resulting from ossific deposit between the middle and inner coats of the vessel, and also a plug at the bifurcation of the abdominal aorta occluding completely the left common iliac, and partially the right.

XXX.—*Note of a Punctured Wound of the Abdomen with Escape of Intestines.*

Seaman—was received into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from a punctured wound of the abdomen, involving the intestines, inflicted thirteen hours prior to admission. The protruded intestines having been cleaved, and the puncture closed with sutures, they were returned to the abdominal cavity by Dr. Thos. J. Griffiths, the surgeon in charge. Pyæmia supervened, and the patient died on the twenty-second day.

XXXI.—*Minute of a Punctured Wound of the Abdomen.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, having received, sixteen hours previously,

a punctured wound of the abdomen. Simple water dressings were applied. Dr. Thos. J. Griffiths reports that the patient died two months after the reception of the injury.

XXXII.—*Memorandum of Two Cases of Abdominal Dropsy.*

CASE I.—Seaman—entered the United States Marine Hospital at Louisville, Kentucky, in 1872, on account of ascites. Dr. Thos. J. Griffiths, the surgeon in charge, performed the operation of paracentesis abdominis, and the patient made a good recovery in four months.

CASE II.—Seaman—was admitted into the Marine Hospital at Cairo, Illinois, in 1872, suffering from abdominal dropsy. Paracentesis abdominis was performed three times during the eight weeks that the patient remained in hospital. He was discharged greatly improved. The operator, Dr. H. Wardner, reported the case.

XXXIII.—*Report of a Fatal Case of Aneurism of the Arteria Innominata, by A. B. Bancroft, M. D.*

Seaman A. W.—a very healthy-looking man, aged 35 years, was wrecked off the coast of Nova Scotia, and was obliged to swim two miles for his life. During this exposure and hardship, he contracted a severe cold, from which he was unable to obtain relief. About three months subsequently, paroxysms of dyspnoea supervened; at first, slight, with wheezing respiration, a violent hoarse, racking cough, sometimes simulating that of croup, with expectoration of several ounces of blood and mucus, distension of the veins of the neck, and terminating in perspiration. The patient suffered from this disease three months, at which time he was admitted into the United States Marine Hospital at Chelsea, Massachusetts. Upon examination, a distinct murmur of a peculiar character was heard over the right clavicle, and occasionally subcrepitant râles in both lungs. The right radial pulse was much weaker than the left, and sometimes not perceptible. No tumor was discernible in the neck; voice not husky; cough slight, not ringing, except during paroxysms. Respiration was quite natural for several days while in hospital under observation, and during this period he had eight or ten paroxysms. The remedies exhibited were of a nature tending to soothe the patient's sufferings. Death finally supervened suddenly from rupture of the sac, and several pints of blood were expectorated. At the autopsy, a well-defined aneurism was revealed, "larger than a hen's egg," commencing abruptly two-thirds of an inch from the aorta. The carotid and subclavian arteries arose freely from it; but, as at their origin they were about half an inch

apart, it was evident they were involved in the aneurism. The sac contained a large amount of old coagulum, and communicated freely with the trachea, midway and upon the left side, by a defined narrow transverse fissure, about three-fourths of an inch in length, seen on the inner surface of the trachea. Both lungs were distended with blood.

XXXIV.—*Abstract of Four Cases of Hernia Operated upon Successfully.*

CASE I.—Seaman—entered the Marine Hospital at Cairo, Illinois, prior to 1871, on account of inguinal hernia. Dr. H. Wardner, the surgeon in charge, obliterated the crural canal by invagination of the scrotum. The patient recovered perfectly in six weeks.

CASE II.—Seaman—was received into the Marine Hospital at Cairo, Illinois, prior to 1871, for the treatment of inguinal hernia. Dr. H. Wardner operated for the radical cure by invagination of the scrotum. The seaman recovered perfectly in four weeks, and was discharged.

CASE III.—Seaman—was admitted into the Marine Hospital at Cairo, Illinois, prior to 1871, on account of inguinal hernia. Dr. H. Wardner operated for the obliteration of the hernial canal by invagination of the scrotum. The operation proved unsuccessful, however, by reason of the supervention of suppurative inflammation. The operation was subsequently repeated with entire success, and the patient, who recovered in three weeks, with the crural canal fully closed, was discharged from the hospital, wearing a truss, temporarily, for the safety of the recent adhesions.

CASE IV.—Seaman—entered the Marine Hospital at Cairo, Illinois, prior to 1871, with inguinal hernia, for which the operation of invagination of the scrotum was performed. Suppurative inflammation supervened, and the operation consequently failed. As soon as the inflammatory stage passed off, Dr. H. Wardner repeated the operation successfully, and the patient made an excellent recovery, four weeks subsequently, and was discharged.

XXXV.—*Instance of a Fatal Case of Strangulated Hernia.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from a strangulated hernia of three days' standing. Dr. Griffiths, the surgeon in charge, at once placed the patient under the influence of chloroform and relieved the stricture. The seaman died six hours after the operation.

XXXVI.—*Notes of Seven Cases of Fistula in Ano.*

CASE I.—Seaman—was admitted into the United States Marine Hospital at Portland, Maine, prior to 1871, suffering from fistula in ano. Dr. C. S. D. Fessenden placed the patient under the influence of æther and divided the sphincter, after which the wound was kept open by tents. The operator reports the result as uncertain.

CASE II.—Seaman—was received into the United States Marine Hospital at Louisville, Kentucky, prior to 1871, suffering from fistula in ano. Dr. Thomas J. Griffiths chloroformed the patient, and divided the intervening tissues. The seaman recovered in about three months.

CASE III.—Seaman—was admitted into the Marine Hospital at Cairo, Illinois, prior to 1871, with fistula in ano, for which Dr. H. Wardner divided the intervening tissues, the patient being under the influence of chloroform. The patient recovered perfectly in three weeks.

CASE IV.—Seaman—entered the Marine Hospital at Cairo, Illinois, prior to 1871, with fistula in ano, for which Dr. Wardner divided the sphincter whilst the patient was under the influence of chloroform. The patient made an excellent recovery in four weeks.

CASE V.—Seaman—was admitted into the Marine Hospital at Cairo, Illinois, prior to 1871, suffering from fistula in ano. The intervening tissues were divided by Dr. Horace Wardner, the patient having been chloroformed. The man was discharged cured in two weeks.

CASE VI.—Seaman—was received into the United States Marine Hospital at St. Louis, Missouri, in 1871, with fistula in ano of two years' standing. The sphincter was divided by Dr. S. H. Melcher, the surgeon in charge, and the patient recovered in twenty-one days.

CASE VII.—Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from a fistula in ano. The surgeon in charge, Dr. Thos. J. Griffiths, placed the patient under the influence of chloroform and divided the sphincter. The man recovered in about two months.

XXXVII.—*Mention of an Operation for Stricture of the Rectum.*

Seaman—was admitted into hospital in Chicago, Illinois, in 1872, suffering from a stricture of the rectum resulting from cicatrices. Dr. E. Andrews placed the patient under the influence of a mixture of chloroform and æther, and relieved the parts by incision and rupture. The opening was maintained by the daily introduction of a bougie, the natural passage was restored, and the man recovered in five weeks and returned to duty.

XXXVIII.—*Notes of Operations for the Removal of Hæmorrhoids.*

CASE I.—Seaman—was admitted to hospital in Cincinnati, Ohio, in 1872, suffering from hæmorrhoids. Dr. P. S. Connor applied ligatures to the protruded vascular tumors, and the patient recovered in two weeks.

CASE II.—Seaman—was received into hospital at Cincinnati, Ohio, in 1872, with hæmorrhoids. The tumors had resisted medical treatment and were sensitive to the touch. Dr. W. W. Dawson applied silk ligatures to the protruded masses. Recovery was rapid and the man was discharged in two weeks.

CASE III.—Seaman—entered the Marine Hospital at Cairo, Illinois, prior to 1871, for the treatment of hæmorrhoids. Dr. Wardner successfully applied ligatures to the affected parts, and the patient recovered perfectly in twenty days.

CASE IV.—Seaman—was admitted to hospital in Chicago, Illinois, in 1872, suffering from external hæmorrhoids, which were successfully removed with the écraseur by Dr. E. Andrews, the patient being under the influence of a mixture of chloroform and æther.

CASE V.—Seamen—entered the Marine Hospital at Cairo, Illinois, prior to 1871, suffering from external hæmorrhoids, which were successfully removed by the application of ligatures. Dr. Horace Wardner, the operator, reports that the patient recovered in twenty days.

CASE VI.—Seaman—was admitted to the Marine Hospital at Cairo, Illinois, prior to 1871, suffering from external hæmorrhoids, which were removed with the écraseur, the patient being under the influence of chloroform, by Dr. H. Wardner. The man was discharged cured in two weeks.

XXXIX.—*Reports of Seven Operations for Hydrocele.*

CASE I.—Seaman—was admitted into the United States Marine Hospital at Portland, Maine, prior to 1871, on account of a hydrocele. Dr. C. S. D. Fessenden, the surgeon in charge, performed an operation for the radical cure, by withdrawing the fluid and injecting into the sac a solution of iodine. The patient recovered.

CASE II.—Seaman—was received into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, on account of a hydrocele. Dr. L. D. Gunter ætherized the patient and excised a portion of the sac. The seaman recovered.

CASE III.—Seaman—was received into the United States Marine

Hospital at Chelsea, Massachusetts, in 1872, suffering from hydrocele. Dr. A. B. Bancroft, the surgeon in charge, having placed the patient under the influence of æther, laid the distended sac freely open. The seaman recovered in one month.

CASE IV.—Seaman—was admitted to the Marine Hospital at Hyannis, Massachusetts, in 1872, suffering from hydrocele. Dr. Peter Pineo, the surgeon in charge, performed an operation for radical cure by withdrawing the fluid with a trocar and introducing into the sac a probe coated with the nitrate of silver. The patient recovered.

CASE V.—Seaman—was admitted to hospital at Norfolk, Virginia, in 1872, suffering from an obstinate hydrocele of four years' duration, which had been operated upon several times, in various ways. Dr. T. B. Ward, the surgeon in charge, placed the patient under the influence of chloroform, withdrew the fluid, and injected into the tunica vaginalis half an ounce of the compound solution of iodine, diluted to one-half strength. The seaman recovered in two months, and no effusion remained.

CASE VI.—Seaman—was received into the Marine Hospital at Hyannis, Massachusetts, in 1872, with hydrocele, which was relieved by Dr. Peter Pineo, the surgeon in charge, by withdrawing the fluid with a trocar. The hydrocele returned in about three months.

CASE VII.—Seaman—was admitted into the hospital at Chicago, Illinois, in 1872, with hydrocele. Dr. E. Andrews, the operator, reports that the patient was ætherized and the fluid withdrawn with a trocar. The seaman recovered in thirty days.

XL.—*Notes of Two Operations for Varicocele.*

CASE I.—Seaman—was received into the United States Marine Hospital at St. Louis, Missouri, in 1871, suffering from varicocele of four years' duration. Dr. S. H. Melcher, the surgeon in charge, ligated the enlarged vein. No anæsthetic was used. The patient recovered in forty days.

CASE II.—Seaman—was admitted into the United States Marine Hospital at St. Louis, Missouri, in 1871, for varicocele of three years' standing. Dr. S. H. Melcher ligated the enlarged vein successfully. No anæsthetic was employed. The seaman recovered in one month.

XLI.—*Four Instances of Extirpation of the Testicle.*

CASE I.—Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from an abscess of

the testicle of twenty-eight days' standing, for which Dr. Thos. J. Griffiths placed the patient under the influence of chloroform and removed the testicle. The seaman recovered in about four months.

CASE II.—Seaman—was admitted to the Marine Hospital at Milwaukee, Wisconsin, in 1872, suffering from an intractable neuralgia of the testicle of several years' duration. Dr. James M. Allen, the surgeon in charge, placed the patient under the influence of chloroform and extirpated the testicle. The pain ceased, and the seaman recovered in two weeks.

CASE III.—Seaman—entered hospital in Cincinnati, Ohio, in 1872, suffering from orchitis of four months' standing. Dr. W. W. Dawson, chloroformed the patient and extirpated the testicle. The man recovered in three weeks.

CASE IV.—Seaman—entered the United States Marine Hospital at Mobile, Alabama, prior to 1871, suffering from a malignant hydrocele, for which Dr. C. H. Mastin extirpated the right testicle successfully, and the patient recovered in about two months.

XLII.—OPERATIONS FOR PHIMOSIS AND PARAPHIMOSIS.

Dr. Thomas J. Griffiths, surgeon in charge of the United States Marine Hospital at Louisville, Kentucky, reports twenty-three operations for phimosis with successful results. The operation of circumcision was performed in eleven cases, and in twelve cases the prepuce was slit up along the dorsum of the penis.

Dr. A. B. Bancroft, surgeon in charge of the United States Marine Hospital at Chelsea, Massachusetts, reports three cases of phimosis in which circumcision was successfully performed by Dr. L. D. Gunter. Two of these cases resulted from chancres, and the third was congenital.

Dr. C. S. D. Fessenden, surgeon in charge of the United States Marine Hospital at Portland, Maine, reports four cases of phimosis for which circumcision was performed successfully in three cases, and in the fourth case the prepuce was divided. Recovery was rapid.

Dr. H. Wardner, surgeon in charge of the Marine Hospital at Cairo, Illinois, reports three cases of phimosis for which circumcision was performed with favorable results.

Seaman—was admitted into the United States Marine Hospital at Portland Maine, suffering from paraphimosis of three days' standing. The strangulation was relieved by incision, the patient being under the influence of ether. The operator, Dr. C. S. D. Fessenden, reports that the patient recovered rapidly.

Dr. Thomas J. Griffiths reports that five seamen were admitted into the United States Marine Hospital at Louisville, Kentucky, suffering from paraphimosis, in all of which cases the strangulation was permanently relieved by incision, with a rapid recovery in each instance.

XLIII.—*Memoranda of Sixteen Operations for the Relief of Strictures.*

CASE I.—Seaman—was admitted to hospital in Norfolk, Virginia, in 1872, suffering from an impermeable stricture situated in the bulbous portion of the urethra. There was constant stillicidium, great distention of the bladder, and pain, from which the patient had suffered for one week. No instrument could be engaged in the stricture. The patient was at once placed under the influence of chloroform, and Dr. T. B. Ward, the surgeon in charge, divided the stricture with the urethrotome. The patient recovered in four weeks, at which time the man was able to pass water in a small stream. He left the hospital as soon as instrumental dilatation began to be employed.

CASE II.—Seaman—was admitted to hospital in Cincinnati, Ohio, in 1872, suffering from a stricture of the urethra, of three years' standing. Dr. W. W. Dawson administered chloroform and divided the stricture by the urethrotome. The operation resulted unfavorably.

CASE III.—Seaman—was admitted to the Marine Hospital at Hyannis, Massachusetts, in 1872, suffering from a stricture of the urethra and a urinary fistula in perineum. Dr. Peter Pino administered æther and dilated the stricture. A catheter was introduced into the bladder, and the fistulous track was injected with a solution of the sulphate of zinc. The seaman recovered in three months.

CASE IV.—Seaman—entered the Marine Hospital at Cairo, Illinois, in 1872, for stricture of the urethra. Dr. H. Wardner employed instantaneous dilatation successfully. The patient recovered in four weeks, and was discharged.

CASE V.—Seaman—was admitted into the Marine Hospital at Cairo, Illinois, in 1872, suffering from stricture of the urethra, for which instantaneous dilatation was employed by Dr. H. Wardner. The man recovered in three weeks.

CASE VI.—Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, in 1872, suffering from a firmly-organized stricture, situated two and a half inches from the meatus, of two years' standing. This patient had been operated upon in April, 1871, but, failing to follow the directions of the surgeon, the operation proved unsuccessful. Chloroform was administered, and Dr. O. L.

Crampton divided the stricture with the urethrotome. The seaman recovered in about one month.

CASE VII.—Seaman—was admitted to the United States Marine Hospital at Mobile, Alabama, in 1872, suffering from a stricture of three years' standing, situated in the membranous portion of the urethral canal. Chloroform was administered, and the stricture was divided by Dr. C. H. Mastin, by the urethrotome. The patient recovered in forty-two days.

CASE VIII.—Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, suffering from a stricture of the urethra and a fistulous opening through the scrotum, of two years' duration. Dr. C. H. Mastin administered chloroform and divided the stricture with the urethrotome. The patient recovered in forty-eight days, and, when he left the hospital, an ordinary catheter could be passed readily.

CASE IX.—Seaman—entered hospital in Chicago, Illinois, in 1872, with a stricture of the urethra, for which catheterization was employed successfully by Dr. E. Andrews, the patient being under the influence of a mixture of chloroform and ether. The man recovered in three weeks.

CASE X.—Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, prior to 1871, suffering from a stricture of the urethra. The stricture was well organized, and situated two inches from the meatus. Dr. C. H. Mastin divided the stricture by the urethrotome. The patient recovered in forty-two days.

CASE XI.—Seaman—entered the United States Marine Hospital at St. Louis, Missouri, in 1871, suffering from a stricture of the urethra, of one year's standing. Dr. S. H. Melcher relieved the stricture by dilatation. The patient recovered in twenty-five days.

CASE XII.—Seaman—was admitted to the Marine Hospital at Milwaukee, Wisconsin, prior to 1871, suffering from an impermeable stricture of the urethra, resulting from an injury. February 22, 1869, chloroform was administered, and Dr. James M. Allen divided the stricture by Syme's perineal section. The patient recovered and was discharged in four weeks. In March, 1872, when this man was seen by the operator, his urinary organs were in perfect condition.

CASE XIII.—Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, prior to 1871, suffering from a stricture of the urethra situated four inches from the meatus. Dr. C. H. Mastin divided the stricture by internal urethrotomy. The patient recovered in about two months.

CASE XIV.—Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, prior to 1871, suffering from a stricture of the urethra situated at its membranous portion. Dr. C. H. Mastin divided the stricture by internal urethrotomy. The patient recovered in twenty-one days.

CASE XV.—Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, prior to 1871, suffering from a stricture of the urethra, situated three and a half inches from the meatus. Dr. C. H. Mastin divided the stricture by internal urethrotomy. The seaman recovered in five weeks.

CASE XVI.—Seaman—entered the United States Marine Hospital at Mobile, Alabama, prior to 1871, suffering from a stricture of the urethra. Dr. C. H. Mastin divided the stricture by the urethrotome. The patient recovered in five weeks.

XLIV.—*Note of an Operation for Artificial Urethra.*

Seaman—was admitted into the Marine Hospital at Cairo, Illinois, prior to 1871, suffering from a urinary fistula, resulting from loss of penis and closure of the meatus by callus of the stump, of three years' standing. Dr. H. Wardner administered chloroform and opened the urethral canal through the callus by incision. With subsequent dilatation the patient recovered rapidly and was discharged in four weeks. The fistula had healed and the patient left the hospital able to pass water in a full stream.

XLV.—*Minute of a Successful Case of Lithotomy.*

Seaman—was admitted into the United States Marine Hospital at Portland, Maine, prior to 1871, suffering from vesical calculus. The patient was placed under the influence of chloroform and the lateral operation of lithotomy was performed by Dr. S. H. Tewksbury. The seaman recovered in four months.

INJURIES AND DISEASES OF THE UPPER EXTREMITIES.

XLVI.—*Abstract of Three Cases of Fracture of the Clavicle.*

CASE I.—Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, prior to 1871, suffering from a simple fracture of the clavicle. Dr. Thos. J. Griffiths applied a bandage and confined the arm in a sling. The patient did well, and the bone was firmly united in forty-nine days, when the patient was discharged.

CASE II.—Seaman—entered the United States Marine Hospital at Louisville, Kentucky, prior to 1871, with a fracture of the clavicle, of five days' standing. A bandage was applied by Dr. Griffiths, and the arm was put in a sling. The patient recovered in two months.

CASE III.—Seaman—entered the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from a simple fracture of the clavicle, of ten hours' standing. The fracture was treated by the application of a bandage and confinement of the arm in a sling. The man recovered in two months. Dr. Thos. J. Griffiths reports the case.

XLVII.—*Minute of a Primary Amputation at the Shoulder Joint.*

Seaman—was taken to the United States Marine Hospital at Chelsea, Massachusetts, in 1872, suffering from an extensive injury of the arm, together with severe laceration of the chest and back, caused by his having been caught by a windlass in motion. Dr. Abner Post placed the patient under the influence of æther and amputated the arm at the shoulder joint. The seaman died on the ninth day.

XLVIII.—*Mention of a Case of Excision of the Head of the Humerus.*

Seaman—was admitted to hospital in Chicago, Illinois, in 1872, suffering from caries of the head of the humerus resulting from secondary syphilis. Dr. E. Andrews placed the patient under the influence of a mixture of chloroform and æther, and removed the head by excision. In his report, which was prepared on the fifteenth day, the operator states that the seaman was doing well.

XLIX.—*Report of an Amputation of the Arm.*

Seaman—was admitted into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, suffering from a frostbite of the hand, of ten days' duration. The patient was ætherized and a finger removed at the second joint. Twelve days subsequently, erysipelas having supervened, Dr. L. D. Gunter again administered æther, and amputated the arm just above the elbow. The seaman died.

L.—*Note of a Secondary Amputation of the Arm.*

Seaman was admitted into hospital at Cincinnati, Ohio, in 1872, suffering from a compound comminuted fracture of the ulna and a simple fracture of the humerus. Dr. P. S. Connor administered chloroform and amputated the arm. The patient was under treatment and doing well July 26, 1872.

LI.—*Instance of a Fracture of the Surgical Neck of the Humerus.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from a fracture of the surgical neck of the humerus, of thirty-eight hours' standing. Dr. Griffiths applied splints, and reports the patient as discharged from hospital twenty-eight days after admission.

LII.—*Report of a Case in which the Brachial Artery was Ligated.*

Seaman—received an extensive lacerated wound of the left arm, involving the brachial artery. He was admitted into the United States Marine Hospital at Mobile, Alabama, prior to 1871, where the brachial artery was ligated by Dr. C. H. Mastin, of Mobile. The patient recovered in about two months.

LIII.—*Mention of the Removal of Necrosed Bone.*

Seaman—was received into the United States Marine Hospital at Portland, Maine, prior to 1871, suffering from necrosis of the humerus. Dr. S. H. Tewksbury chloroformed the patient and removed a sequestrum through an incision. The seaman was discharged much improved.

LIV.—*Note of a Gunshot Wound of the Arm.*

Seaman—was admitted into the United States Marine Hospital at St. Louis, Missouri, in 1871, suffering from a gunshot flesh wound of the arm, the ball remaining lodged. Dr. S. H. Melcher removed the missile through an incision, and the patient was discharged in a few days.

LV.—*Reports of two Cases of Excision at the Elbow Joint.*

CASE I.—Seaman—was admitted into the Marine Hospital at Milwaukee, Wisconsin, in 1872, suffering from an injury of the lower extremity of the humerus. Dr. James M. Allen administered chloroform and excised the elbow joint. Erysipelas supervened. The patient recovered in two months.

CASE II.—Seaman—was admitted into the Marine Hospital at Port Townsend, Washington Territory, June 16, 1872, suffering from a severe wound received by falling against a circular saw, first striking it with his elbow which was cut through into the joint, excising the head of the ulna, and nearly dividing the posterior portion of the lower extremity of the humerus. In struggling to free himself from the saw he fell again upon it, striking on his back and inflicting a wound

through the external muscles covering a space of forty-eight square inches. The patient was placed under the influence of chloroform, and Dr. T. T. Minor, the surgeon in charge, excised the lower extremity of the humerus, olecranon process, and a portion of the shaft of the ulna. The operator reported, August 6, 1872, that the seaman was still under treatment, and that the wounds had nearly healed. Photographs of the patient, showing the extent of the injuries, also accompanied the history of the case.

LVI.—*Report of an Amputation of the Fore-arm.*

Seaman—was received into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, suffering from a splinter under the finger nail, for which the finger was removed six weeks after admission. Erysipelas of the hand and wrist supervened, and, four weeks subsequently, Dr. L. D. Gunter ætherized the patient, and amputated the fore-arm at the junction of the lower and middle thirds. The seaman recovered in one month.

LVII.—*Minute of an Amputation of the Fore-arm.*

Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, in 1872, suffering from tuberculosis of the left-wrist joint, of three years standing. Dr. O. L. Crampton administered chloroform and amputated the fore-arm at the middle third. The patient recovered in forty-seven days.

LVIII.—*Mention of an Amputation of the Fore-arm.*

Seaman—was admitted to hospital in Cincinnati, Ohio, in 1872, suffering from a lacerated wound of the fore-arm. Chloroform was at once administered, and Dr. W. W. Dawson amputated the limb. The patient recovered in two months.

LIX.—*Report of a Primary Amputation of the Fore-arm.*

Seaman—was conveyed to the Marine Hospital at Cairo, Illinois, prior to 1871, suffering from a crushed hand and wrist. Dr. H. Wardner, the surgeon in charge, placed the patient under the influence of chloroform and amputated the fore-arm just below the elbow. The seaman recovered in three months, with a good firm stump, and was discharged from the hospital.

Simple Fractures of the Fore-arm.

Dr. Thomas J. Griffiths, surgeon in charge of the United States Marine Hospital at Louisville, Kentucky, reports three simple fractures of the bones of the fore-arm successfully treated with common splints.

LX.—Instance of an Amputation at the Wrist Joint.

Seaman—entered the United States Marine Hospital at Mobile, Alabama, in 1872, for an incised wound nearly severing the hand near the carpo-metacarpal articulation. Dr. O. L. Crampton administered chloroform and amputated at the wrist joint. The seaman recovered.

LXI.—Note of an Excision at the Wrist Joint.

Seaman—was admitted to hospital in Chicago, Illinois, in 1872, suffering from caries and erysipelas of the wrist joint. Dr. E. Andrews placed the patient under the influence of a mixture of chloroform and æther, and excised the carpal and heads of metacarpal bones. The seaman died two weeks subsequently, from erysipelas and toxæmia.

LXII.—Memorandum of a Gunshot Wound of Hand.

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, prior to 1871, with a gunshot flesh wound of the hand. Simple dressings were applied, and the patient left the hospital ten days from the date of injury. Dr. Thomas J. Griffiths reported the case.

LXIII.—Instance of Excision of a Metacarpal Bone.

Seaman—was received into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, suffering from necrosis of the bones of the hand, of three months' standing. Dr. L. D. Gunter administered æther and excised two-thirds of the metacarpal bone of the right index finger. The patient recovered.

LXIV.—Memoranda of Twenty-five Amputations of Portions of the Hand and Fingers.

CASE I.—Seaman—was admitted into the United States Marine Hospital at Key West, Florida, prior to 1871, with a crushed finger. Chloroform was administered, and Dr. R. J. Perry removed the finger at the first phalanx. The stump healed and the patient was discharged in three weeks.

CASE II.—Seaman—entered the Marine Hospital at Cairo, Illinois, prior to 1871, with a crushed finger. Dr. C. Gericke administered chlo-

reformed and amputated the finger at the first phalanx. The patient recovered in three weeks.

CASE III.—Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, prior to 1871, for necrosis of the right index finger. Dr. R. W. Coale amputated the finger at the metacarpophalangeal articulation. The patient recovered in two weeks.

CASE IV.—Seaman—was admitted to the Marine Hospital at Milwaukee, Wisconsin, prior to 1871, suffering from a lacerated wound of the hand. Dr. James M. Allen administered chloroform and amputated two fingers, together with the heads of the metacarpal bones. The patient recovered, with a useful hand, in four weeks.

CASE V.—Seaman—was received into the Marine Hospital at Milwaukee, Wisconsin, prior to 1871, suffering from a crushed finger. Dr. James M. Allen chloroformed the patient and amputated the middle finger at the metacarpophalangeal articulation. The seaman recovered with a useful hand.

CASE VI.—Seaman—was admitted into the Marine Hospital at Milwaukee, Wisconsin, prior to 1871, suffering from a neglected whitlow of the index finger. Dr. James M. Allen administered chloroform and amputated the finger at the second phalangeal joint. The patient recovered in three weeks.

CASE VII.—Seaman—was admitted into the United States Marine Hospital at Portland, Maine, prior to 1871, for a frostbite of the hand. The patient was ætherized, and Dr. C. S. D. Fessenden amputated the second finger at the metacarpophalangeal articulation. The seaman recovered in twenty-five days.

CASE VIII.—Seaman—received a permit to enter hospital at Cincinnati, Ohio, in 1872, for a contused wound of the third finger. A portion of the finger was removed by Dr. P. S. Connor. No anæsthetic was used. The patient recovered in one month.

CASE IX.—Seaman—received a permit to enter the Marine Hospital at Milwaukee, Wisconsin, prior to 1871, for necrosis of the phalanges of the index finger. Chloroform was administered, and Dr. James M. Allen amputated the finger at the metacarpophalangeal joint. The patient recovered with a useful hand in two weeks.

CASE X.—Seaman—was sent to the Marine Hospital at Cairo, Illinois, prior to 1871, suffering from frostbite of the hand. Dr. H. Wardner administered chloroform and removed the ends of the fingers. The patient recovered in six weeks.

CASE XI.—Seaman—was admitted to the Marine Hospital at Milwaukee, Wisconsin, prior to 1871, suffering from a lacerated wound of the hand. Dr. James M. Allen administered chloroform and removed the thumb. The patient recovered.

CASE XII.—Seaman—was admitted into the United States Marine Hospital at Portland, Maine, February 9, 1871, suffering from a frostbite of the hands. Dr. C. S. D. Fessenden administered æther, and amputated the thumb of the left hand and all of the fingers of the right hand. The patient recovered in sixty-eight days.

CASE XIII.—Seaman—was admitted into the United States Marine Hospital at Cleveland, Ohio, in 1872, with an injury of the third phalanx of middle finger. Dr. N. B. Prentice, the surgeon in charge, amputated the finger at the metacarpo-phalangeal joint. No anæsthetic was used. The patient recovered in one month.

CASE XIV.—Seaman—entered the Marine Hospital at Hyannis, Massachusetts, in 1872, for frostbite of the left hand. Dr. Peter Pineo administered chloroform and amputated three fingers. The patient recovered.

CASE XV.—Seaman—was admitted into the Marine Hospital at Cairo, Illinois, in 1872, suffering from crushed fingers. Chloroform was administered, and the fingers were removed by Dr. H. Wardner. The patient recovered in six weeks.

CASE XVI.—Seaman—entered the Marine Hospital at Milwaukee, Wisconsin, in 1872, for a lacerated wound of the middle finger. Dr. Jas. M. Allen administered chloroform and amputated the finger at the metacarpo-phalangeal joint. The patient recovered in four weeks.

CASE XVII.—Seaman—was admitted to the Marine Hospital at Milwaukee, Wisconsin, with ankylosis of a finger which was flexed firmly on the palm, rendering the hand almost useless. Chloroform was administered and Dr. Jas. M. Allen removed the finger at the metacarpo-phalangeal articulation. The patient recovered with a useful hand in three weeks.

CASE XVIII.—Seaman—received a permit to enter hospital at New Haven, Connecticut, in 1872, on account of a frostbite of the hand. Dr. Bishop removed several fingers, and, in his report, stated that the patient was still under treatment and doing well.

CASE XIX.—Seaman—entered hospital in Chicago, Illinois, in 1872, suffering from ankylosis of finger. Dr. E. Andrews administered æther, and removed the finger at the metacarpo-phalangeal articulation. The patient recovered in one month.

CASE XX.—Seaman—was admitted to hospital in Chicago, Illinois, in 1872, for necrosis, resulting from a bite of the finger. Æther was administered, and Dr. E. Andrews removed the first phalanx. The patient recovered in two months.

CASE XXI.—Seaman—was received into the Marine Hospital at Port Townsend, Washington Territory, in 1872, with a wound of the hand inflicted with a saw. Dr. T. T. Minor amputated the fifth finger at the metacarpo-phalangeal joint, without the use of anæsthetics. The patient recovered in three weeks.

CASE XXII.—Seaman—entered hospital at Chicago, Illinois, in 1872, suffering from a crushed finger. Dr. E. Andrews administered nitrous oxide gas and removed the finger. The patient recovered in five weeks.

CASE XXIII.—Seaman—was admitted into the Marine Hospital at Port Townsend, Washington Territory, in 1872, with contusion of the finger. Dr. T. T. Minor amputated the finger at the second phalangeal joint, the patient being under the influence of chloroform. The seaman recovered.

CASE XXIV.—Seaman was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from contused wounds of two fingers. Dr. Thos. J. Griffiths administered chloroform and amputated the fingers. The patient recovered in about three months.

CASE XXV.—Seaman—was admitted into the United States Marine Hospital, at Louisville, Kentucky, in 1872, suffering from a contused wound of the hand, for which the index finger was removed by Dr. Thomas J. Griffiths. The patient recovered in forty-eight days.

INJURIES AND DISEASES OF THE LOWER EXTREMITIES.

LXV.—*Report of Two Cases of Fracture of the Femur.*

CASE I.—Seaman—was conveyed to the Marine Hospital, at Evansville, Indiana, in 1872, suffering from a fracture of the femur; Dr W. G. Ralston administered chloroform and applied splints. The patient recovered in six months, with the shortening of one inch.

CASE II.—Seaman—was admitted into the United States Marine Hospital, at Louisville, Kentucky, suffering from a simple fracture of the femur, at its middle third, of four days' standing. Dr. Thos. J. Griffiths applied a Plaster of Paris bandage. The patient recovered rapidly, and was discharged with firm union of bone.

LXVI.—*Note of a Successful Ligation of the External Iliac Artery.*

Seaman—was admitted to Hospital at New Orleans, Louisiana, in 1872, suffering from an aneurism of the femoral artery. Dr. A. W. Smyth administered chloroform and ligated the external iliac, with recovery in eight months.

LXVII.—*Memorandum of a Ligation of the Superior Profunda Artery.*

Seaman—was admitted into the Marine Hospital at Cairo, Illinois, prior to 1871, suffering from a wound of the superior profunda artery, of two weeks' standing. The external opening of the wound had closed, and a large tumor had formed underneath, which was subsequently ascertained to have resulted from secondary hæmorrhage. Upon opening up this tumor, very profuse hæmorrhage supervened, and the true nature of the case was revealed. The vessel was ligated by Dr. H. Wardner, the surgeon in charge, without the use of anæsthetics. The ligature remained firm for a long time, but finally gave way, while torsion was being made; and, upon examination of the wound, a large number of calcareous deposits were found in the callus between the bone and skin. The patient recovered in six weeks, but suffered from paralysis of the extensor muscles.

LXVIII.—*Account of an Intermediate Amputation of the Thigh for Compound Fracture.*

Seaman—was conveyed to hospital at Evansville, Indiana, in 1871, suffering from a compound comminuted fracture of the bones of the leg, high up. Dr. S. W. Thompson administered chloroform, and amputated the thigh just above the knee joint, by the circular method. The patient recovered, with a good stump, in three months, and had an artificial limb adjusted, which he wears with ease.

LXIX.—*Report of an Amputation of the Thigh for Scrofulous Disease of the Femur.*

Seaman—was received into the Marine Hospital at Port Townsend, Washington Territory, in 1872, suffering from scrofulous disease of the femur. Dr. T. T. Minor, the surgeon in charge, placed the patient under the influence of chloroform, and amputated the thigh at its upper third. The seaman recovered in two months.

LXX.—*Instance of Amputation of Both Legs for Frostbite.*

Seaman—was admitted into the United States Marine Hospital at Portland, Maine, prior to 1871, suffering from frostbite of both feet, of

twenty-one days' standing. Æther was administered, and Dr. C. S. D. Fessenden, the surgeon in charge, amputated both legs at the lower third. The patient recovered in two months with good firm stumps, and subsequently procured artificial limbs, but only used them a short time, as he preferred to walk on knee-pads.

LXXI.—*Minute of an Amputation of the Leg for Injury of the Foot and Ankle.*

Seaman—was received into the Marine Hospital at Cairo, Illinois, suffering from a crushed foot and ankle. Dr. H. Wardner at once placed the patient under the influence of chloroform, and amputated the leg at the lower third. The seaman recovered with a good stump in eight weeks.

LXXII.—*Note of a Primary Amputation of the Leg for Compound Dislocation of Ankle Joint.*

Seaman—was conveyed to the United States Marine Hospital at Cleveland, Ohio, in 1872, suffering from a compound dislocation of the ankle joint. The patient was placed under the influence of a mixture of chloroform and æther, and Dr. N. B. Prentice amputated the leg, midway between the knee and ankle joint, by the circular method. Pyohæmia supervened, and the seaman died on the fortieth day.

LXXIII.—*Account of an Amputation of the Leg for Compound Fracture.*

Seaman—was taken to the United States Marine Hospital at Cleveland, Ohio, in 1872, suffering from a compound fracture of the tibia and fibula, at the junction of the lower and middle thirds. The patient was at once placed under the influence of a mixture of chloroform and æther, and Dr. N. B. Prentice, the surgeon in charge, amputated the leg, at the junction of the upper and middle thirds, by the flap method. The seaman recovered in two months.

LXXIV.—*Note of a Primary Amputation of the Leg for Compound Fracture.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from a compound fracture of the bones of the leg. Chloroform was administered, and Dr. Thomas J. Griffiths amputated the leg. The patient recovered in four months.

LXXV.—*Memorandum of an Amputation of the Leg for Injury of the Foot and Ankle Joint.*

Seaman—was conveyed to the United States Marine Hospital at Key West, Florida, in 1871, suffering from a crushed foot and ankle of thirteen days' duration. Dr. J. Hartsman administered chloroform, and amputated the leg, at the upper third, by the flap method. The patient recovered in about three months.

LXXVI.—*Report of a Primary Amputation of the Leg for Injury of the Foot.*

Seaman—was conveyed to the Marine Hospital at Milwaukee, Wisconsin, prior to 1871, having had one of his feet torn off. Dr. E. B. Walcott administered chloroform, and amputated the leg, at the lower third, by the flap method. The patient recovered in about six weeks, with a good stump.

LXXVII.—*Minute of an Amputation of the Leg for Necrosis of the Bones of the Ankle Joint.*

Seaman—was received into the United States Marine Hospital at Chelsea, Massachusetts, in 1882, suffering from necrosis of the tarsal bones, resulting from a fracture of the astragalus. Three weeks subsequent to admission, Dr. L. D. Gunter administered æther, and amputated the leg at the junction of the upper and middle thirds. This patient was also afflicted with Bright's disease. Gangrene supervened and the seaman died five weeks after the operation.

LXXVIII.—*Account of a Primary Amputation of the Leg for a Compound Fracture of the Ankle Joint.*

Seaman—was received into the hospital at New Orleans, Louisiana, in 1872, suffering from a compound fracture of the ankle joint. Chloroform was administered, and Dr. P. C. Boyer, the surgeon in charge, amputated the leg by the circular method. The patient died three days subsequent to the operation.

LXXIX.—*Report of a Secondary Amputation of the Leg for Necrosis.*

Seaman—was received into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, suffering from a frostbite of the left foot. Necrosis of the bones of the foot and ankle supervened, and a portion of a metatarsal bone was excised. Erysipelas supervened, with deep seated abscesses, and, eleven days after admission, Dr. L. D.

Gunter placed the patient under the influence of æther and amputated the leg, at the middle third, by the ordinary flap method. The seaman recovered in three months.

LXXX.—*Report of a Successful Amputation of the Leg for Secondary Syphilis, involving Ankle Joint.*

Seaman Henry Winford, aged 27 years, was received into the United States Marine Hospital at Memphis, Tennessee, January 2, 1872, suffering from secondary syphilis, involving the ankle joint, of eighteen months' standing. On January 2, Dr. G. B. Thornton placed the patient under the influence of chloroform, and amputated the leg at the lower third, by the lateral method. Erysipelatous inflammation supervened, and, about ten days subsequent to the operation, an abscess formed, about five inches above the stump. He was discharged April 15, 1872, fifty-three days from the date of operation, with a good firm stump. While in hospital the patient was treated for syphilis. The operator reported, November 8, 1872, that the seaman wore an artificial limb with ease, and had been free from a return of the original disease.

LXXXI.—*Note relative to Removal of Necrosed Bone.*

Seaman—was admitted to hospital in Cincinnati, Ohio, in 1872, for necrosis of tibia, of three years' standing. Dr. P. S. Connor cut down to the bone, and removed the diseased parts. No anæsthetic was used. In July, 1872, the patient was under treatment and doing well.

LXXXII.—*Memoranda of Four Cases of Fracture of the Bones of Leg.*

CASE I.—Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from a simple fracture, of two days' standing. Dr. Thomas J. Griffiths applied splints. The patient recovered in about three months.

CASE II.—Seaman—was admitted to hospital at Brownsville, Texas, in 1872, suffering from a compound fracture of the left tibia and fibula, at the lower third, received on shipboard from the blow of a plank. Dr. N. H. Matas coaptated the fractured extremities and applied common splints. Complete union of bone resulted in thirty-six days, with no shortening, and the seaman recovered, with a strong and useful limb.

CASE III.—Seaman—was admitted to the United States Marine Hospital at Louisville, Kentucky, in 1872, for a fracture of the tibia, of fourteen hours' duration. Dr. Thos. J. Griffiths applied a Plaster of Paris bandage to the limb, and the patient recovered in four months.

CASE IV.—Seaman—entered the United States Marine Hospital at Louisville, Kentucky, in 1872, with a fracture of the bones of the leg, of nine hours' standing. A Plaster of Paris bandage was applied to the limb by Dr. Griffiths. The seaman recovered in about three months.

LXXXIII.—*Note Relative to a Case of Talipes Equinus Relieved by Tenotomy.*

Seaman—was admitted into the United States Marine Hospital at Mobile, Alabama, in 1872, with talipes equinus, resulting from confinement of the limb in a mechanical appliance for a compound fracture of the bones of the right leg, one year prior to admission. The patient was placed under the influence of chloroform, and Dr. O. L. Crampton divided the tendon. The seaman recovered in thirty-nine days, with full use of the joint.

LXXXIV.—*Report of a Fracture of the Astragalus.*

Seaman—entered the United States Marine Hospital at Louisville, Kentucky, prior to 1871, suffering from a fracture of the astragalus, of fourteen days' standing. Erysipelas supervened. The patient recovered in three months with a useful limb. Dr. Thos. J. Griffiths reports the case.

LXXXV.—*Minute of a Fracture of Astragalus.*

Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, prior to 1871, with a fracture of the astragalus. Dr. Griffiths applied simple dressings. The patient recovered in about two months.

LXXXVI.—*Mention of the Removal of Shot from the Foot and Ankle.*

Seaman—was wounded by accident in the left foot and ankle, November 12, 1870, by the discharge of a gun loaded with duck shot. He was admitted to the Marine Hospital at Apalachicola, Florida, where Dr. J. M. G. Hunter, the surgeon in charge, removed about twenty-five shot. He was discharged six weeks subsequently, and continued to do duty until the following June, when he again entered hospital and several remaining shot were extracted. He was entirely relieved, and returned to duty in ten days.

LXXXVII.—*Instance of the Removal of a Cancerous Tumor over the Malleolus.*

Seaman—was received into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, suffering from a cancerous tumor, of ten months' duration, situated over the inner malleolus. Dr. L. D. Gunter administered æther and excised the diseased structures. The patient recovered and returned to duty in two months.

AMPUTATIONS OF PORTIONS OF THE FOOT AND TOES.

LXXXVIII.—*Memoranda of Fifteen Cases where Amputation or Excision of Portions of the Foot and Toes was Performed.*

CASE I.—Seaman—entered hospital at Richmond, Virginia, in 1872, suffering from an injury of the foot, with laceration of the second toe. Dr. George Ross excised the second toe and a portion of the metatarsal bone. No anæsthetic was used. The patient recovered in seventy-five days.

CASE II.—Seaman—was admitted into the United States Marine Hospital at Louisville, Kentucky, prior to 1871, with an injury of the foot. Chloroform was administered, and Dr. Thos. J. Griffiths amputated the second toe. The patient recovered in fifty-four days.

CASE III.—Seaman—was admitted into the United States Marine Hospital at Portland, Maine, February 9, 1871, suffering from a frostbite of sixteen days' standing. The patient was placed under the influence of æther, and Dr. C. S. D. Fessenden amputated all of the toes of the right foot, at the metatarso-phalangeal articulation. The seaman recovered in sixty-eight days.

CASE IV.—Seaman—was admitted into the United States Marine Hospital at Portland, Maine, prior to 1871, suffering from a frostbite of both feet, of twenty three days' duration. Dr. C. S. D. Fessenden placed the patient under the influence of a mixture of chloroform and æther, and excised all the toes of the right foot, and also the first and fifth toes of the left foot. The seaman recovered in two months.

CASE V.—Seaman—was admitted into the United States Marine Hospital at Portland, Maine, prior to 1871, suffering from frostbite of the right foot. A mixture of chloroform and æther was administered, and Dr. C. S. D. Fessenden amputated the first toe at the metatarso-phalangeal articulation. The patient recovered in three months.

CASE VI.—Seaman—was admitted into the United States Marine Hospital at Portland, Maine, prior to 1871, suffering from frostbite of the right foot, of one month's standing. Chloroform was administered, and Dr. S. H. Tewksbury amputated the first and second toes, at the metatarso-phalangeal joint. The patient returned to duty in two months.

CASE VII.—Seaman—was admitted into the United States Marine Hospital at Portland, Maine, prior to 1871, with frostbite of the right foot, of one month's standing. Chloroform was administered, and Dr. S. H. Tewksbury excised the first phalanx of the first toe. The patient recovered in thirty days.

CASE VIII.—Seaman—was sent to the United States Marine Hospital at Portland, Maine, prior to 1871, suffering from frostbite of the foot. Dr. S. H. Tewksbury administered chloroform and excised the first toe, at the second phalangeal joint. The patient recovered in two months.

CASE IX.—Seaman—entered the United States Marine Hospital at Mobile, Alabama, prior to 1871, with a compound fracture of the first toe, for which the toe was excised. He returned to duty in four months. Dr. O. L. Crampton reported the case.

CASE X.—Seaman—entered the United States Marine Hospital at Louisville, Kentucky, in 1872, suffering from an injury of a toe, for which Dr. Thos. J. Griffiths chloroformed the patient, and excised the first phalanx. The patient recovered in two months.

CASE XI.—Seaman—entered hospital at Chicago, Illinois, in 1872, suffering from frostbite of foot. Dr. E. Andrews administered æther, and excised the first toe. The patient recovered in three months and a half.

CASE XII.—Seaman—received a permit to enter hospital at New Haven, Connecticut, in 1872, for frostbite of the left foot. Dr. Fred. Belloso excised the first toe. Gangrene and pyohæmia supervened, and the patient died two weeks subsequent to the operation.

CASE XIII.—Seaman—was admitted to the hospital at New Haven, Connecticut, in 1872, for an injury of a toe of the right foot. Dr. A. Lindsley excised the toe. The patient recovered in thirty days.

CASE XIV.—Seaman—entered the United States Marine Hospital at Mobile, Alabama, in 1872, suffering from necrosis of bones of first toe. Dr. O. L. Crampton administered chloroform and amputated the toe, excising the articular head of the metatarsal bone. The patient recovered in four months, and experienced no discomfort in walking.

CASE XV.—Seaman—was admitted into the United States Marine Hospital at Chelsea, Massachusetts, in 1872, suffering from frostbite of both feet, of twenty-four hours' standing. Dr. L. D. Gunter, having placed the patient under the influence of chloroform, amputated all the toes of both feet, and excised the articular heads of the metatarsal bones of the right foot. Some spiculæ of necrosed bone were removed subsequently. The seaman made a good recovery in five months.

TABLE A.—*Classified statement of Diseases and Injuries treated in hospitals, of*

		GENERAL DISEASES—													
PORTS OF—		Remaining under treatment, June 30, 1871.	Febris intermittens tertiana.	Febris intermittens quotidiana.	Febris intermittens quartana.	Febris intermittens biliosa.	Febris typho-malarialis.	Febris remittens.	Febris catarrhalis.	Febris congestiva.	Febris enterica.	Febris typhus.	Febris cerebro-spinalis.	Febris flava.	Febricula.
MAINE.															
Portland	white.....	9	16	7				1			4				
MASSACHUSETTS.															
Boston.....	white.....	66	132				27			1	35				
Barnstable.....	white.....	7	34								7				
Edgartown.....	white.....		4			8		4			8				
RHODE ISLAND.															
Providence.....	white.....		24					1			3				
CONNECTICUT.															
Middletown.....	white.....										2				
New Haven.....	white.....		6					1			2				
New Haven.....	colored.....		2												
NEW YORK.															
New York city.....	white.....	156	69	51	1		3	86		1	1		1	1	
New York city.....	colored.....	1	3					2							
Buffalo.....	white.....	23	2					28			1				6
Oswego.....	white.....	2	4					5			1				
PENNSYLVANIA.															
Philadelphia.....	white.....	29	75			2	5	3		1	8		1		
Philadelphia.....	colored.....	4	3								1				
Pittsburg.....	white.....	7	6	6							1				
Pittsburg.....	colored.....														
MARYLAND.															
Baltimore.....	white.....	19	94					6		1	8			1	
Baltimore.....	colored.....	6	8					2			3	1			
DISTRICT OF COLUMBIA.															
Georgetown.....	white.....	14	19			2		4			3				
VIRGINIA.															
Richmond.....	white.....		5					2			1				
Richmond.....	colored.....	2	1												
Norfolk.....	white.....		10	2											
Norfolk.....	colored.....		3												
NORTH CAROLINA.															
Wilmington.....	white.....	4	12			4					5				
Newbern.....	white.....	1	4			1	2				1				
Beaufort.....	white.....					1									
SOUTH CAROLINA.															
Charleston.....	white.....	7	8	4		4		1	1		3			3	1
Charleston.....	colored.....	1	2												
GEORGIA.															
Savannah.....	white.....	33	47			75		1		6	2				
Savannah.....	colored.....	2													
FLORIDA.															
Jacksonville.....	white.....														
Key West.....	white.....	2	2					21							
Apalachicola.....	white.....	3				7		5							
Pensacola.....	white.....		17					1	2		2				
Pensacola.....	colored.....														
ALABAMA.															
Mobile.....	white.....	35	187	1			2	20		1					
Mobile.....	colored.....	17	32					5					1		
LOUISIANA.															
New Orleans.....	white.....	47	61	41				169		11				1	
New Orleans.....	colored.....	7	3	3				16							

(*Morbi corporis universi.*)

LOCAL DISEASES—(*Morbi partium singularum.*)

[illegible]

TABLE A—

GENERAL DISEASES—																												
PORTS OF—		Remaining under treatment, June 30, 1871.																										
		Febris intermittens tertiana.		Febris intermittens quotidiana.		Febris intermittens quartana.		Febris intermittens biliosa.		Febris typho-malarialis.		Febris remittens.		Febris catarrhalis.		Febris congestiva.		Febris enterica.		Febris typhus.		Febris cerebro-spinalis.		Febris flava.		Febricula.		
TEXAS.																												
Galveston.....	white.....	29	48	16	15					32			2	2														
Galveston.....	colored.....	1	2							1																		
Indianola.....	white.....	1	4																									
Indianola.....	colored.....																											
TENNESSEE.																												
Nashville.....	white.....	5	1																									
Memphis.....	white.....	6	25							17			2															
Memphis.....	colored.....	5	6							1	14																	
KENTUCKY.																												
Louisville.....	white.....	24	22							8	34			11														
Louisville.....	colored.....	27	22							6	9			7														
OHIO.																												
Cincinnati.....	white.....	29	30								5			3														
Cincinnati.....	colored.....	12	3								3			12														
Cleveland.....	white.....	23	20	16										4														
Cleveland.....	colored.....										6																	
MICHIGAN.																												
Detroit.....	white.....	17	37								26			2														
INDIANA.																												
Evansville.....	white.....	9	21								2																	
Evansville.....	colored.....	3	13								4																	
ILLINOIS.																												
Chicago.....	white.....	40	76							3	38			2														
Chicago.....	colored.....																											
Cairo.....	white.....	21	29							2	49	4		1														
Cairo.....	colored.....	10	5							1	16	3																
WISCONSIN.																												
Milwaukee.....	white.....	8	29	8							4			2								2						
MINNESOTA.																												
Pembina.....	white.....	12	9							1																		
IOWA.																												
Dubuque.....	white.....	4	13								2	1		1														
Dubuque.....	colored.....																											
MISSOURI.																												
St. Louis.....	white.....	31	20								80		1	8														
CALIFORNIA.																												
San Francisco.....	white.....	79	6								24			2														
OREGON.																												
Astoria.....	white.....	3	2								3			1														
WASHINGTON TERRITORY.																												
Port Townsend.....	white.....	17		3							4																	
Grand Total.....		920	1338	158	16	104	61	757	11	27	150	1	5	6	7													

NOTE.—This table does not include the diseases treated in hospitals of class IV.

Continued.

(Morbis corporis universi.)

LOCAL DISEASES—(Morbis partium
singulorum.)

Varola discreta.	Varola modificata.	Morbilli.	Erysipelas.	Rheumatismus acutus.	Rheumatismus chronicus.	Lumbago.	Pleurodynia.	Rheumatismus gonorrhoeicus.	Rheumatismus syphiliticus.	Scrofulosis.	Podagra.	Syphilis primaria.	Syphilis secundaria.	Carcinoma.	Epithelioma.	Tumores malignantes et non malignantes.	Ranula.	Tonsillitis.	Pharyngitis.	Gastritis.	Gastralgia.	Hemorrhagia gastrica.	Gastro-enteritis.	Dyspepsia.	Enteritis.
.....	32	17	.....	.....	.....	.....	.....	.....	26	15	.....	.....	.....	.....	1	.....	5	.....	1	.....	.....	1
.....	3	.....	.....	.....	.....	.....	.....	9	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	2	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	1	10	.....	.....	.....	.....	.....	.....	.....	23	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
.....	14	.....	.....	.....	.....	.....	.....	.....	27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	8	18	.....	.....	.....	.....	.....	.....	17	25	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
3	2	.....	5	27	.....	.....	.....	.....	5	.....	15	38	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	2	.....
5	1	21	.....	.....	.....	.....	.....	.....	.....	55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	1	.....	3	.....	18	1	.....	.....	.....	3	.....	49	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....
3	4	7	5	.....	.....	.....	.....	1	.....	20	19	.....	.....	1	.....	1	.....	1	.....	.....	.....	1	.....
1	1	.....	.....	.....	.....	.....	.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	2	15	9	.....	.....	.....	.....	.....	.....	23	35	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....
.....	1	.....	3	1	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	3	.....	.....	4	.....	.....	.....	.....	.....	.....	10	20	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	8	20	35	.....	.....	.....	.....	.....	.....	42	44	1	.....	1	.....	2	3	3	.....	.....	.....	1	.....
1	2	18	5	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	1	17	7	.....	.....	.....	.....	3	.....	18	4	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	33	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	1	2	8	.....	1	.....	.....	.....	.....	8	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....
.....	1	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....
.....	1	1	.....	4	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	4	6	11	.....	.....	.....	3	.....	62	45	1	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	4	27	37	.....	.....	.....	.....	14	.....	37	82	1	.....	9	.....	1	.....	.....	.....	.....	.....	.....
.....	5	1	.....	.....	.....	.....	1	.....	3	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	6	29	4	.....	.....	.....	2	.....	16	5	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....
119	12	14	79	505	415	16	1	1	24	46	3	1070	630	10	2	26	1	48	16	28	4	2	1	38	7

(*Morbi partium singularum.*)

[illegible]

Continued.

(Morbis partium singularum.)

Lithia renalis arenosa.	Gonorrhoea.	Phimosis.	Paraphimosis.	Epididymitis.	Stricture urethrae.	Uteri anteversion.	Trichinosis.	Erythema.	Urticaria.	Psoriasis.	Herpes.	Eczema.	Ecthyma.	Aene.	Aene rosacea.	Icthyosis.	Congelatio.	Ambusta.	Abcessus.	Ulcus.	Furunculus.	Carbunculus.	Paronychia.	Gangraena.
.....	1	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	.....	6	2	1	.....	.....	.....
.....	.....	.....	.....	35	.....	.....	.....	1	2	1	.....	7	.....	.....	.....	52	1	33	8	4	.....	.....	15	.....
.....	2	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	12	.....	2	.....	.....	1	.....	1	.....
.....	3	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	1	1	.....	.....	1	.....	.....
.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	3	2	.....	.....	.....	.....	.....
.....	8	.....	.....	25	15	.....	1	.....	1	.....	.....	1	.....	.....	.....	15	7	45	44	3	.....	7	.....	.....
.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	10	1	9	5	.....	2	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	.....	1	.....
.....	1	.....	1	7	2	.....	.....	.....	.....	.....	.....	3	1	.....	1	3	2	5	15	.....	2	5	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	2	.....	.....	.....	.....	.....	.....
.....	3	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	2	15	5	1	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14	.....	2	2	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	2	.....	2	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	2	.....	1	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	3	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	2	.....	1	.....	.....
.....
.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	6	2	2	.....	1	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	3	.....	1	1	.....	.....
.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	5	.....	.....	2	.....
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
.....	.....	.....	.....	1	7	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	4	5	23	1	2	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	6	.....	.....	1	.....
.....	.....	.....	.....	.....	6	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	4	1	13	29	1	1	3	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....

DISEASES OF THE NERVOUS SYSTEM—(*Morbi nervorum apparatus.*)

DISEASES OF THE ORGANS OF THE SPECIAL SENSES—(*Morbi sensuum singularium apparatus.*)

[illegible]

TABLE A—

		LOCAL DISEASES—(<i>Morbi partium singularum.</i>)													
PORTS OF—		Phagedæna putris.	Anasarca.	Purpura.	Scorbutus.	Anæmia.	Debilitas.	Uremia.	Pyohæmia.	Splenitis.	Hypertrophia lienis.	Cirsocele funiculi seminalis.	Hydrocele.	Orethritis.	Spermatorrhœa.
TEXAS.															
Galveston.....	white.....									2	1			4	
Galveston.....	colored....														
Indianola.....	white.....													1	
Indianola.....	colored....														
TENNESSEE.															
Nashville.....	white.....		1												
Memphis.....	white.....		2												
Memphis.....	colored....														
KENTUCKY.															
Louisville.....	white.....													4	
Louisville.....	colored....													2	
OHIO.															
Cincinnati.....	white.....						1					1		4	2
Cincinnati.....	colored....						2							1	
Cleveland.....	white.....					2									
Cleveland.....	colored....														
MICHIGAN.															
Detroit.....	white.....						5						2		1
INDIANA.															
Evansville.....	white.....					1									
Evansville.....	colored....													1	
ILLINOIS.															
Chicago.....	white.....												1	5	
Chicago.....	colored....														
Cairo.....	white.....														
Cairo.....	colored....													1	
WISCONSIN.															
Milwaukee.....	white.....														
MINNESOTA.															
Pembina.....	white.....														
IOWA.															
Dubuque.....	white.....														
Dubuque.....	colored....														
MISSOURI.															
St. Louis.....	white.....					5					3	1	1	11	
CALIFORNIA.															
San Francisco.....	white.....		1		44	1									
OREGON.															
Astoria.....	white.....				3										
WASHINGTON TERRITORY.															
Port Townsend.....	white.....														
Grand Total.....		1	13	1	65	40	23	3		5	8	4	20	115	5

TABLE A—

PORTS OF—	DISEASES OF THE BONES AND JOINTS—(<i>Morbi ossium et articulorum.</i>)										LOCAL INJURIES—					
	Surditas.	Ozaena.	Periostitis.	Ostitis.	Caries.	Necrosis.	Synovitis.	Arthritis.	Ankylosis.	Coxarum morbus.	Contusio.	Concussio.	Concussio cerebri.	Stemma.	Luxatio.	Fractura simplex.
MAINE.																
Portland.....white.....						1					1			4		4
MASSACHUSETTS.																
Boston.....white.....	1			4		3			1	1	29			10	4	18
Barnstable.....white.....		1				2	1				1	2	1		1	4
Edgartown.....white.....											6					4
RHODE ISLAND.																
Providence.....white.....					1						9					2
CONNECTICUT.																
Middletown.....																1
New Haven.....white.....			1								5			1		
New Haven.....colored.....																
NEW YORK.																
New York city.....white.....			4		1	8	7				59	1	1	2	4	22
New York city.....colored.....											1					1
Buffalo.....white.....						2	1				20					1
Oswego.....white.....											1					4
PENNSYLVANIA.																
Philadelphia.....white.....						2					15			1	1	7
Philadelphia.....colored.....			1													
Pittsburg.....white.....											5			1		2
Pittsburg.....colored.....																
MARYLAND.																
Baltimore.....white.....		1				2					4			3		3
Baltimore.....colored.....														1		4
DISTRICT OF COLUMBIA.																
Georgetown.....white.....			1			1					2					2
VIRGINIA.																
Richmond.....white.....																
Richmond.....colored.....											2					
Norfolk.....white.....											2					1
Norfolk.....colored.....											2					
NORTH CAROLINA.																
Wilmington.....white.....														1		
Newbern.....white.....																
Beaufort.....white.....											1					
SOUTH CAROLINA.																
Charleston.....white.....											10			1		2
Charleston.....colored.....			1								1					
GEORGIA.																
Savannah.....white.....		1				1					6			1	1	3
Savannah.....colored.....																
FLORIDA.																
Jacksonville.....white.....											2			3		
Key West.....white.....											5	1		1		
Apalachicola.....white.....											1					
Pensacola.....white.....																1
Pensacola.....colored.....																
ALABAMA.																
Mobile.....white.....						3	5				17			4		3
Mobile.....colored.....						7					1			1		

^a There were 312 patients treated at this port during the year, but surgeons' reports of diseases could only be obtained for the months of May and June, 1872.

Continued.

(Injurie singulares.)																			
Fractura foras patens.	Vulnera sclopetica.	Vulnera incisa.	Vulnera lacerata.	Vulnera punctata.	Amputatio.	Venera aria acidi carbonici.	Venera hydrargyri.	Venera plumbi.	Maligneria.	Total admitted during the year.	Total treated during the year.	Discharged cured.	Discharged improved.	Discharged not improved.	Deserted while under treatment.	Died.	Remaining, June 30, 1872.	Average number of days each patient was under treatment.	Percentage of deaths.
.....	1	1	3	2	.....	.....	.....	.....	.....	149	158	132	12	7	1	1	5	25+	.632
1	4	1	5	1	.....	.....	1	1	.....	912	978	539	307	26	5	43	58	26+	4.39
1	.....	.....	1	.....	.....	.....	.....	.....	.....	186	193	119	52	.....	.....	8	14	36+	4.14
.....	.....	.....	2	.....	.....	.....	.....	.....	.....	84	84	76	2	.....	.....	6	.....	59-	7.14
.....	.....	.....	.....	.....	.....	.....	.....	.....	3	108	108	87	9	.....	.....	4	8	22+	3.70
.....	.....	1	.....	.....	.....	.....	.....	.....	.....	11	11	7	2	.....	.....	1	1	44+	9.09
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	43	43	24	2	.....	1	1	5	33-	4.25
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	4	4	3	.....	.....	.....	1	.....	.....	.....
3	3	7	13	2	.....	.....	.....	.....	1	1025	1181	902	121	18	15	60	65	31-	5.19
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49	50	34	6	1	2	4	3	31+	2.09
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	168	191	156	16	2	.....	4	13	24+	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34	36	30	2	.....	1	.....	3	.....	.....
.....	.....	1	2	.....	.....	.....	.....	.....	.....	367	396	297	37	5	.....	23	34	28+	6.51
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30	34	20	5	.....	.....	5	4	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	99	106	36	64	1	.....	.....	5	32-	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	7	1	6	.....	.....	.....	.....	.....	.....
.....	1	1	.....	1	.....	.....	.....	.....	.....	351	370	292	31	4	.....	18	25	31+	4.64
.....	.....	1	.....	.....	.....	.....	.....	.....	.....	98	104	78	11	1	.....	4	10	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	85	99	71	15	1	.....	3	9	35+	3.03
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	24	24	14	6	2	.....	1	1	41+	6.06
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	9	7	.....	.....	.....	1	1	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	284	284	240	.....	.....	.....	21	23	41-	a 7.05
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	28	28	14	.....	.....	.....	1	13	.....	.....
1	3	.....	.....	.....	.....	.....	.....	.....	.....	59	63	54	2	.....	.....	2	5	36-	3.17
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	19	20	12	6	.....	.....	.....	2	24+	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	4	2	2	.....	.....	.....	.....	18	.....
.....	.....	.....	3	.....	.....	.....	.....	.....	.....	120	127	79	28	8	.....	6	6	25+	4.
.....	.....	1	.....	.....	.....	.....	.....	.....	.....	22	23	10	8	.....	.....	.....	5	.....	.....
.....	1	1	6	.....	1	.....	.....	.....	.....	301	334	287	12	6	2	15	12	42+	4.43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	4	4	.....	.....	.....	.....	.....	.....	.....
.....	1	7	1	.....	.....	.....	.....	.....	.....	20	20	14	4	.....	1	1	.....	23-	5.
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	91	93	68	12	.....	.....	5	8	25+	5.37
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33	36	30	3	.....	.....	.....	3	26-	.....
.....	3	.....	.....	.....	.....	.....	.....	.....	.....	117	117	95	14	.....	2	1	5	23+	b 1.68
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	1	.....	.....	.....	1	.....	.....	.....
.....	1	.....	6	1	.....	.....	.....	.....	.....	440	475	392	47	.....	.....	14	22	43-	2.91
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	126	143	95	30	.....	.....	4	14	.....	.....

^b There were 119 patients treated during the year, but surgeons' reports of diseases could only be obtained for the last six months of the fiscal year.

TABLE A—

PORTS OF—	DISEASES OF THE BONES AND JOINTS—(<i>Morbi ossium et articulorum.</i>)										LOCAL INJURIES—					
	Surditas.	Ozena.	Periostitis.	Ostitis.	Caries.	Necrosis.	Synovitis.	Arthritis.	Ankylosis.	Coxarum morbus.	Contusio.	Concussio.	Concussio cerebri.	Stemma.	Luxatio.	Fractura simplex.
LOUISIANA.																
New Orleans.....white.....	5	.....	2	.....	.....	.....	38	.....	.....	15	1	3
New Orleans.....colored.....	1	.....	.....	.....	14	.....	.....	.....	.....	1
TEXAS.																
Galveston.....white.....	20	.....	.....	1	1	4
Galveston.....colored.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Indianola.....white.....	2	.....	.....	.....	.....	.....
Indianola.....colored.....	1	.....	.....	.....	.....	.....
TENNESSEE.																
Nashville.....white.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Memphis.....white.....	14	.....	.....	.....	.....	2
Memphis.....colored.....	8	.....	1	.....	1	4
KENTUCKY.																
Louisville.....white.....	27	.....	.....	.....	.....	1
Louisville.....colored.....	30	.....	.....	.....	.....	2
OHIO.																
Cincinnati.....white.....	1	1	.....	1	.....	.....	.....	.....	12	.....	.....	1	1	7
Cincinnati.....colored.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	.....	.....	.....	.....	1
Cleveland.....white.....	2	.....	.....	.....	1	.....	.....	.....	18	.....	.....	10	2	3
Cleveland.....colored.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MICHIGAN.																
Detroit.....white.....	1	.....	.....	.....	.....	25	.....	1	1	4
INDIANA.																
Evansville.....white.....	2	.....	.....	1	.....	.....
Evansville.....colored.....	5	.....	.....	1	.....	1
ILLINOIS.																
Chicago.....white.....	1	1	.....	.....	.....	.....	54	1	.....	5	3	16
Chicago.....colored.....
Cairo.....white.....	1	.....	.....	.....	.....	17	.....	.....	6	.....	4
Cairo.....colored.....	11	.....	.....	1	.....	3
WISCONSIN.																
Milwaukee.....white.....	2	1	.....	.....	8	.....	.....	2	.....	3
MINNESOTA.																
Pembina.....white.....	2	.....	.....	.....	.....	.....
IOWA.																
Dubuque.....white.....	1	.....	.....	.....	.....	7	.....	.....	.....	.....	1
Dubuque.....colored.....
MISSOURI.																
St. Louis.....white.....	2	.....	.....	.....	.....	10	.....	.....	13	3	5
CALIFORNIA.																
San Francisco.....white.....	7	1	.....	.....	.....	.....	15	.....	.....	3	4	11
OREGON.																
Astoria.....white.....	1	.....	.....	.....	.....	1
WASHINGTON TERRITORY.																
Port Townsend.....white.....	15	.....	.....	1	.....	4
Grand Total.....	2	4	13	5	15	39	21	2	1	547	30	3	97	28	170	

TABLE B—

PORT OF—	DISEASES												
	Hypertrophica cordis.	Pericarditis.	Aneurysma.	Cirrhosis hepatis.	Abscessus hepatis.	Jaundex.	Nephritis.	Nephritis desquamans.	Degeneratio adiposa renis.	Uremia.	Diabetes.	Hypertrophica lienis.	Cystitis.
Portland, Me.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston, Mass.....	white.....	.....	1	.....	.....	.....	.....	5	1	2	.....	.....	.....
Barnstable, Mass.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Edgartown, Mass.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Providence, R. I.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Haven, Conn.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Haven, Conn.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Middletown, Conn.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New York city, N. Y.....	white.....	2	3	1	.....	.....	2	2	.....	.....	.....	.....	.....
New York city, N. Y.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Buffalo, N. Y.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Philadelphia, Penn.....	white.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Philadelphia, Penn.....	colored.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
Baltimore, Md.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Baltimore, Md.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgetown, D. C.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Richmond, Va.....	white.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Richmond, Va.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
a Norfolk, Va.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wilmington, N. C.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Charleston, S. C.....	white.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Savannah, Ga.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pensacola, Fla.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pensacola, Fla.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Key West, Fla.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jacksonville, Fla.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mobile, Ala.....	white.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....
Mobile, Ala.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Orleans, La.....	white.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....
New Orleans, La.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Galveston, Texas.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Galveston, Texas.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Indianola, Texas.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Memphis, Tenn.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Memphis, Tenn.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Louisville, Ky.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Louisville, Ky.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland, Ohio.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland, Ohio.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cincinnati, Ohio.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cincinnati, Ohio.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evansville, Ind.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evansville, Ind.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Chicago, Ill.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Chicago, Ill.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cairo, Ill.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cairo, Ill.....	colored.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit, Mich.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Milwaukee, Wis.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Louis, Mo.....	white.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pembina, Minn.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
San Francisco, Cal.....	white.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Astoria, Oregon.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Port Townsend, W. T.....	white.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	2	3	5	3	1	2	2	11	1	3	1	1	2
													1
													1

a Twenty-two deaths occurred at this port during the year, but the diseases from which the patients died could only be furnished in one case.

NOTE.—This table does not include the diseases of which seamen died in hospitals of class IV.

TABLE C.—Statement showing the extent of hospital relief furnished to sick and disabled seamen at the several ports of the United States, during the fiscal year ending June 30, 1872, together with the total expenditures and indebtedness incurred for the same, and the amount of hospital money collected under the "Act to reorganize the marine hospital service," &c., approved June 29, 1870.

For the sake of convenience, hospitals in which seamen are relieved are divided into four classes, viz:

Class I comprises United States marine hospitals conducted by the Government.

Class II comprises United States marine hospitals leased to and conducted by corporate or private parties.

Class III comprises local hospitals exclusively or in part devoted to seamen, at fixed rates established each year.

Class IV comprises extemporized hospitals to meet the wants of the smaller ports, being usually in private dwellings, with rate adjusted for each case of relief.

States and ports.	Class.	In hospital, June 30, 1871.	Admitted.	Treated.	Discharged.	Died.	In hospital, June 30, 1872.	Aggregate days' relief.	Daily cost per man.	Total cost.	Tax collected.
MAINE.											
Bangor.....	4	5	45	50	41	2	6	1,816	\$0 73	\$1,319 90	\$1,187 66
Bath.....	4		6	6	6			214	1 00	216 00	1,429 29
Belfast.....	4		23	23	21	2		782	96	752 88	1,035 68
Castine.....	4		6	6	6			372	35	131 36	1,597 65
Eastport.....	4	1	9		10			260	1 23	319 59	2,161 96
Ellsworth.....	4		10	10	8	2		391	1 58	619 00	1,479 67
Kennebunk.....											129 22
Machias.....											1,512 44
Portland.....	1	9	149	158	152	1	5	3,976	1 45	5,778 53	3,209 36
Waldoboro.....	4	1	31	32	25	4	4	1,384	51	703 78	2,973 06
Wiscasset.....	4		1	1			1	32	79	25 25	339 28
York.....											107 80
Total.....		16	280	296	269	11	16	9,227		9,866 29	17,163 07
NEW HAMPSHIRE.											
Portsmouth.....	3	2	15	17	18	1	2	976	\$1 09	\$1,064 74	\$459 11
VERMONT.											
Burlington.....	4		5	5	4		1	174	\$0 76	\$132 08	\$226 70
MASSACHUSETTS.											
Boston.....	1	68	911	979	878	43	58	25,274	\$1 14	\$28,705 97	\$16,783 84
Barnstable.....	3	7	186	193	171	8	14	7,031	1 02	7,189 00	2,825 17
Edgartown.....	3		84	84	78	6		4,941	87	4,315 26	491 88
Fall River.....											1,200 99
Gloucester.....											862 15
Marblehead.....											76 37
Newburyport.....											267 62
Nantucket.....											101 35
New Bedford.....										a 28 05	1,201 90
Plymouth.....											132 84
Salem.....											308 96
Total.....		75	1,181	1,256	1,127	57	72	37,246		40,238 28	24,253 07
RHODE ISLAND.											
Bristol.....	4		1	1	1			27	\$0 80	\$24 30	\$198 73
Newport.....	4		4	4	2	2		222	81	179 55	1,895 76
Providence.....	3	2	106	108	96	4	8	2,406	1 11	2,772 62	2,265 24
Total.....		2	111	113	99	6	8	2,655		2,976 47	4,359 73
CONNECTICUT.											
Bridgeport.....											\$1,632 17
Middletown.....	3		11	11	9	1	1	489	\$0 77	\$377 71	2,370 14
New Haven.....	3		47	47	40	2	5	1,528	1 00	1,543 00	1,832 12
New London.....	4		12	12	11		1	212	90	191 60	1,475 41
Stonington.....											897 32
Total.....			70	70	60	3	7	2,220		2,112 31	8,207 16

a Transportation, &c., of sick seamen to Chelsea hospital.

TABLE C—Continued.

States and ports.	Class.	In hospital, June 30, 1871.	Admitted.	Treated.	Discharged.	Died.	In hospital, June 30, 1872.	Aggregate days' relief.	Daily cost per man.	Total cost.	Tax collected.
NEW YORK.											
Albany.....											\$2,456 68
Buffalo.....	3	23	167	190	174	4	13	5,944	\$0 82	\$4,274 20	5,867 71
Cape Vincent.....	4							23	1 04	24 04	467 03
Dunkirk.....											25 42
New York.....	3	157	1,076	1,233	1,104	64	68	37,636	1 03	38,714 12	53,257 89
Niagara.....											110 22
Oswego.....	3	2	34	36	33		3	875	1 39	1,218 65	1,566 60
Ogdensburg.....											391 75
Plattsburg.....	4		4	4	4			181	73	132 94	566 23
Rochester.....											119 21
Sag Harbor.....	4	1	4	5	4	1		184	83	152 90	938 12
Total.....		183	1,285	1,468	1,319	69	84	44,843		44,516 85	65,796 86
NEW JERSEY.											
Bridgeton.....											\$2,520 54
Bargaintown.....											1,326 04
Lamberton.....											391 24
Newark.....											1,053 50
Perth Amboy.....											3,264 17
Tuckerton.....	4		20	20	15	2	2	777	\$1 08	\$836 00	691 70
Total.....			20	20	15	2	2	777		836 00	9,247 19
PENNSYLVANIA.											
Erie.....	4		14	14	13	1		10		\$45 00	\$977 96
Philadelphia.....	3	35	397	432	367	28	37	12,242	\$1 05	12,827 94	17,232 86
Pittsburg.....	1	7	106	113	108		5	3,586	1 62	5,799 94	4,051 46
Total.....		42	517	559	488	29	42	15,838		18,672 88	22,262 28
DELAWARE.											
Wilmington.....	4		3	3	3			91	\$1 06	\$96 00	\$2,203 78
MARYLAND.											
Annapolis.....											\$490 04
Baltimore.....	3	25	449	474	419	22	35	14,241	\$0 68	\$9,614 73	15,961 37
Crisfield.....	4									5 00	5,514 60
Town Creek.....											216 40
Total.....		25	449	474	419	22	35	14,241		9,619 73	22,182 41
DISTRICT OF COLUMBIA.											
Georgetown.....	3	14	85	99	87	3	9	3,468	\$0 72	\$2,489 16	\$1,690 96
VIRGINIA.											
Alexandria.....	4		1	1	1			95	\$1 56	\$147 00	\$710 97
Eastville.....											2,209 46
Norfolk.....	3	19	293	312	254	22	36	12,745	1 01	12,854 75	3,873 38
Petersburg.....											104 33
Richmond.....	3	1	32	33	29	2	2	1,354	1 00	1,366 50	645 04
Tappahannock.....											524 69
Yorktown.....											762 61
Total.....		20	325	345	283	24	38	14,194		14,368 25	8,830 48
WEST VIRGINIA.											
Parkersburg.....											\$1,010 17
Wheeling.....	4	3	13	16	13	2	1	555	\$0 98	\$542 45	1,229 87
Total.....		3	13	16	13	2	1	555		542 45	2,240 04
NORTH CAROLINA.											
Beaufort.....	4		4	4	4			72	\$0 97	\$69 94	\$517 88
Edenton.....	4		1	1	1			14	50	7 09	513 34

Table C discloses a few slight discrepancies in the numbers of patients admitted, discharged, died, and remaining, at some of the ports, which had not been explained by the Collectors at the date of closing this report.

TABLE C—Continued.

States and ports.	Class.	In hospital, June 30, 1871.	Admitted.	Treated.	Discharged.	Died.	In hospital, June 30, 1872.	Aggregate days' relief.	Daily cost per man.	Total cost.	Tax collected.
NORTH CAROLINA—Continued.											
Newbern.....	3	1	19	20	18	.....	2	490	\$2 11	\$1,044 92	\$825 49
Ocracoke <i>a</i>	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wilmington.....	3	4	59	63	56	2	5	2,239	1 11	2,594 85	1,060 22
Total.....	.....	5	83	88	79	2	7	2,815	.....	3,716 71	2,916 93
SOUTH CAROLINA.											
Beaufort.....	4	.....	1	1	1	.....	.....	10	\$1 00	\$10 00	\$135 11
Charleston.....	3	8	146	154	138	6	11	3,922	77	3,029 00	2,741 33
Georgetown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64 00	301 81
Total.....	.....	8	147	155	139	6	11	3,932	.....	3,043 00	3,178 25
GEORGIA.											
Brunswick.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	\$294 70
Savannah.....	3	35	298	333	309	15	12	14,159	\$9 84	\$11,872 02	3,150 46
St. Mary's.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	241 33
Total.....	.....	35	298	333	309	15	12	14,159	.....	11,872 02	3,686 49
FLORIDA.											
Apalachicola.....	4	3	34	37	34	.....	3	960	\$0 98	\$936 35	\$217 20
Cedar Keys.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	292 88
Fernandina.....	4	.....	3	3	2	1	.....	35	2 38	83 46	552 73
Jacksonville.....	4	.....	21	21	20	1	.....	452	1 71	776 12	442 98
Key West.....	1	2	91	93	79	5	8	2,346	2 36	5,541 14	2,143 34
Pensacola.....	3	4	116	120	112	2	5	2,770	1 18	3,280 75	1,188 33
St. Augustine.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39
Total.....	.....	9	265	274	247	9	16	6,563	.....	10,617 82	4,837 85
ALABAMA.											
Mobile.....	2	53	566	619	563	18	36	26,463	\$1 00	\$26,559 00	\$3,093 80
MISSISSIPPI.											
Natchez <i>c</i>	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	\$24 48
Shieldsboro'.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	459 35
Vicksburg.....	3	2	48	50	44	5	2	1,056	\$1 04	\$1,096 00	589 75
Total.....	.....	2	48	50	44	5	2	1,056	.....	1,096 00	1,073 58
LOUISIANA.											
Franklin.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	\$574 00
New Orleans.....	3	58	914	968	881	47	44	28,552	\$1 05	\$29,931 87	19,725 12
Total.....	.....	58	914	968	881	47	44	28,552	.....	29,931 87	20,299 12
TEXAS.											
Brownsville.....	4	2	9	11	11	.....	.....	475	\$0 96	\$457 73	\$471 06
Corpus Christi.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	139 36
El Paso.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	123 24
Galveston.....	3	30	392	422	382	13	25	9,841	84	8,224 40	3,352 93
Indianola.....	3	.....	20	20	17	2	1	597	1 52	905 00	619 56
Total.....	.....	32	421	453	410	15	26	10,913	.....	9,587 13	4,706 15
TENNESSEE.											
Memphis.....	3	11	255	266	238	22	6	4,955	\$1 03	\$5,120 00	\$2,041 50
Nashville.....	3	6	21	27	26	.....	1	913	97	882 68	807 35
Total.....	.....	17	276	293	264	22	7	5,868	.....	6,002 68	2,848 85

a United States hospital; unoccupied.*b* Transportation of patients to Savannah.*c* United States marine hospital; never used as such.

TABLE C—Continued.

States and ports.	Class.	In hospital, June 30, 1871.	Admitted.	Treated.	Discharged.	Died.	In hospital, June 30, 1872.	Aggregate days' relief.	Daily cost per man.	Total cost.	Tax collected.
KENTUCKY.											
Louisville.....	2	51	525	576	489	18	69	27,855	\$0 89	\$24,768 45	\$2,326 40
Paducah.....											525 98
Total.....		51	525	576	489	18	69	27,855	.....	24,768 45	2,852 38
OHIO.											
Cleveland.....	1	23	247	270	242	7	22	7,811	\$1 00	\$7,787 36	\$4,480 64
Cincinnati.....	3	41	429	470	414	19	37	16,909	65	10,994 88	4,576 00
Sandusky.....	4		1	1	1			18	2 59	46 70	1,205 82
Toledo.....											899 27
Total.....		64	677	741	657	26	59	24,738	.....	18,828 94	11,161 73
INDIANA.											
Evansville.....	3	12	156	168	150	6	12	5,274	\$0 76	\$3,992 76	\$2,243 65
ILLINOIS.											
Alton.....											\$102 23
Chicago <i>a</i>	3	40	537	577	518	21	38	15,026	\$0 88	\$13,267 63	7,263 11
Cairo.....	3	31	427	458	405	24	29	14,161	1 01	14,300 00	510 79
Galena.....	4		2	2	2			18	1 03	18 50	2,206 97
Quincy.....											246 84
Total.....		71	966	1,037	925	45	67	29,205	.....	27,586 13	10,329 94
MICHIGAN.											
Detroit.....	1	16	290	306	277	3	26	8,911	\$1 02	\$9,088 10	\$6,330 22
Grand Haven.....	4		1	1	1			55	1 37	75 40	1,967 75
Marquette.....	4	1	22	23	22	1		587	1 27	743 25	539 58
Port Huron.....											2,882 07
Total.....		17	313	330	300	4	26	9,553	.....	9,906 75	11,719 62
WISCONSIN.											
Milwaukee.....	3	8	139	147	134	3	11	5,306	\$0 72	\$3,833 42	\$4,779 42
MISSOURI.											
St. Louis.....	1	32	465	497	434	23	40	15,775	\$0 85	\$13,458 87	\$11,849 93
St. Joseph.....											223 77
Total.....		32	465	497	434	23	40	15,775	.....	13,458 87	12,073 70
IOWA.											
Burlington.....											\$24 40
Dubuque.....	3	4	48	52	51		2	1,394	\$1 05	\$1,464 55	69 00
Keokuk.....	4		3	3	3			123	1 00	123 00	42 00
Total.....		4	51	55	54		2	1,517	.....	1,587 55	135 40
MINNESOTA.											
St. Paul.....	3	12	21	33	28	1	4	833	\$1 13	\$943 51	\$1,558 42
Duluth.....											10 40
Total.....		12	21	33	28	1	4	833	.....	943 51	1,568 82
NEBRASKA.											
Omaha.....											\$791 44
CALIFORNIA.											
San Francisco.....	3	79	421	500	419	23	61	28,210	\$1 07	\$30,069 64	\$24,394 89

a Old marine hospital burned October 10, 1871; new hospital building at Lake View, near Chicago, unfinished.

TABLE C—Continued.

State and ports.	Class.	In hospital, June 30, 1871.	Admitted.	Treated.	Discharged.	Died.	In hospital, June 30, 1872.	Aggregate days' relief.	Daily cost per man.	Total cost.	Tax collected.
OREGON.											
Astoria.....	3	3	44	47	41	1	5	1,624	\$1 25	\$2,030 22	\$929 77
Portland	4	.....	1	1	1	.....	.....	35	1 61	56 50	958 10
Total.....	.....	3	45	48	42	1	5	1,659	.....	2,086 72	1,887 87
ALASKA TERRITORY.											
Sitka	4	.....	5	5	3	.....	1	238	\$1 67	\$396 66	\$390 33
WASHINGTON TER.											
Port Townsend	3	17	174	191	170	3	18	8,816	\$1 00	\$8,846 00	\$3,607 00

RECAPITULATION.

States.	In hospital, June 30, 1871.	Admitted.	Treated.	Discharged.	Died.	In hospital, June 30, 1872.	Aggregate days' relief.	Total cost.	Tax collected.
Maine	16	280	296	269	11	16	9,227	\$9,866 29	\$17,163 07
New Hampshire.....	2	15	17	18	1	2	976	1,064 74	459 11
Vermont .....	.....	5	5	4	.....	1	174	132 08	226 70
Massachusetts.....	75	1,181	1,256	1,127	57	72	37,246	40,238 28	24,253 07
Rhode Island.....	2	111	113	99	6	2	2,655	2,976 47	4,359 73
Connecticut .....	.....	70	70	60	3	7	2,229	2,112 31	8,207 16
New York	183	1,285	1,468	1,319	69	84	44,843	44,516 85	65,796 86
New Jersey.....	.....	20	20	15	2	2	777	836 00	9,247 19
Pennsylvania.....	42	517	559	488	29	42	15,838	18,672 88	22,262 28
Delaware .....	.....	3	3	3	.....	.....	91	96 00	2,203 78
Maryland	25	449	474	419	22	35	14,241	9,619 73	22,182 41
District of Columbia....	14	85	99	87	3	9	3,468	2,489 16	1,690 96
Virginia.....	20	325	345	283	24	38	14,194	14,368 25	8,830 48
West Virginia.....	3	13	16	13	2	1	555	542 45	2,240 04
North Carolina.....	5	83	88	79	2	7	2,815	3,716 71	2,916 93
South Carolina.....	8	147	155	139	6	11	3,932	3,043 00	3,178 25
Georgia	35	298	333	309	15	12	14,159	11,872 02	3,686 49
Florida	9	265	274	247	9	16	6,563	10,617 82	4,837 85
Alabama	53	566	619	563	18	36	26,463	26,559 00	3,093 80
Mississippi.....	2	48	50	44	5	2	1,056	1,096 00	1,073 58
Louisiana.....	54	914	968	881	47	44	28,552	29,931 87	20,299 12
Texas	32	421	453	410	15	26	10,913	9,587 13	4,706 15
Tennessee	17	276	293	264	22	7	5,868	6,002 68	2,848 85
Kentucky	51	525	576	489	18	69	27,865	24,768 45	2,852 38
Ohio.....	64	677	741	657	26	59	24,738	18,828 94	11,161 73
Indiana.....	12	156	168	150	6	12	5,274	2,992 76	2,243 65
Illinois.....	71	966	1,037	925	45	67	29,205	27,586 13	10,329 94
Michigan.....	17	313	330	300	4	26	9,553	9,906 75	11,719 62
Wisconsin.....	8	139	147	134	3	11	5,306	3,833 42	4,779 42
Missouri	32	465	497	434	23	40	15,775	13,458 87	12,073 70
Iowa	4	51	55	54	.....	2	1,517	1,587 55	135 40
Minnesota.....	12	21	33	28	1	4	833	943 51	1,568 82
Nebraska.....	.....	.....	.....	.....	.....	.....	.....	.....	791 44
California.....	79	421	500	419	23	61	28,210	30,069 64	24,394 89
Oregon.....	3	45	48	42	1	5	1,659	2,086 72	1,887 87
Alaska Territory .....	.....	5	5	3	.....	1	238	396 66	390 33
Washington Territory....	17	174	191	170	3	18	8,816	8,846 00	3,607 00
Total.....	967	11,335	12,302	10,945	521	853	405,814	396,263 11	323,700 05

TABLE D.—*Summary statement of the operations of the Marine Hospital Service for the fiscal year ending June 30, 1872, as compared with the preceding fiscal year, 1871.*

	1871.	1872.	Difference.
Number of sick and disabled seamen treated in marine and other hospitals.....	14,256	12,302	.....
Number of seamen with trivial diseases relieved, by being furnished with medicine, without being admitted to hospital.....		854	.....
Total number of seamen relieved.....	14,256	13,156	.....
Number of days of hospital relief.....	437,287	405,814	.....
Average number of patients maintained daily, exclusive of 854 seamen relieved in 1872 without being admitted to hospital.....	1,198	1,111	.....
Average number of days each patient remained in hospital.....	30 7-10	32 9-10	.....
Percentage of deaths.....	3.75	3.94	.....
Total expenditures and indebtedness incurred on account of the Marine Hospital Service, exclusive of erecting and repairing marine hospital buildings.....	\$453,082 42	\$396,263 11	.....
Average cost per diem for each patient, counting 854 "out patients" as 854 days' relief, and calculating the average cost on the basis of total expenditures and indebtedness of the service incurred for each year.....	\$1 04	\$0 97.6	.....
Diminished expenditures of the service during the fiscal year ending June 30, 1872.....			\$56,819 31
Diminished percentage of expenditures during the fiscal year ending June 30, 1872.....			12½ per ct.
Amount of hospital money collected.....	\$288,145 42	\$323,700 05	.....
Increase of hospital money collections during the fiscal year ending June 30, 1872.....			\$35,554 63
Number of ports where relief was furnished, either in United States marine, established local, or extemporized hospitals.....	72	81	.....
Number of ports where hospital money was collected.....	125	128	.....

TABLE E.—*Showing the amounts of hospital money collected; the appropriations made by Congress to supply deficiencies; and the annual expenditures on account of the marine hospital service from October 1, 1798, to June 30, 1872. The act of May 3, 1802, (2 Stat., 192,) provides that all hospital money collected shall be paid into the Treasury, and from June 30, 1802, when this provision went into effect, this statement is by warrants; prior to that date, the statement is made from collectors' accounts.*

Year.	Collections.	Appropriations.	Available.	Expenditures.
1798 } 1801 }	b \$141,690 25		\$141,690 25	c \$74,636 51
1802.....	d 47,635 09		47,635 09	38,500 74
1803.....	33,766 47		33,766 47	250 00
1804.....	54,933 21		54,933 21	31,087 36
1805.....	58,210 98	\$1,000 00	59,210 98	e f 84,027 50
1806.....	57,928 20		57,928 20	59,828 41
1807.....	66,820 01		66,820 01	g 53,281 98
1808.....	61,474 47		61,474 47	65,571 51
1809.....	36,515 44		36,515 44	60,383 16
1810.....	h 74,192 42		74,192 42	70,901 75
1811.....	53,715 20		53,715 20	36,793 60
1812.....	54,586 34		54,586 34	57,109 08
1813.....	42,421 46		42,421 46	i 57,723 11
1814.....	21,789 58	20,000 00	41,789 58	53,376 87
1815.....	10,191 97	20,000 00	30,191 97	45,226 50
1816.....	28,374 74	20,000 00	48,374 74	43,651 55
1817.....	43,864 21		43,864 21	k 82,555 68
1818.....	48,081 88		48,081 88	l 81,749 28
1819.....	46,911 27		46,911 27	87,230 62
1820.....	50,405 84		50,405 84	84,097 61
1821.....	48,765 01	81,319 34	130,084 35	87,217 39
1822.....	48,569 99	50,000 00	98,569 99	66,845 48

a So far as accounts have been received to November 1, 1872.

b Includes \$15,635 33, hospital money received from the Navy Department.

c Includes \$6,185 33, for purchase of Norfolk hospital.

d Includes \$2,500, hospital money received from the Navy Department.

e Includes \$14,842 34, cost of Charlestown hospital, at the port of Boston.

f Includes \$157 66, carried to surplus fund.

g Includes \$379 66, carried to surplus fund.

h Includes \$38,513 96, hospital money received from Navy Department.

i Includes 1 cent, carried to surplus fund.

k Includes \$6,500, expended for repairs of Norfolk hospital.

l Includes \$5,500, cost of site of Charleston, S. C., hospital.

TABLE E—Continued.

Year.	Collections.	Appropriations.	Available.	Expenditures.
1822.....	\$51,923 72	\$30,000 00	\$81,923 72	\$44,324 61
1823.....	53,062 91	.....	53,062 91	44,761 13
1824.....	51,877 52	a 12,875 00	64,752 52	47,861 77
1825.....	56,992 39	.....	56,992 39	b 54,938 51
1826.....	54,133 10	.....	58,133 10	51,236 98
1827.....	58,233 67	.....	58,233 67	c 89,137 42
1828.....	56,217 27	.....	56,217 27	69,259 61
1829.....	58,361 34	.....	58,361 34	63,562 28
1830.....	57,447 13	.....	57,447 13	68,996 96
1831.....	59,182 17	.....	59,182 17	65,563 98
1832.....	58,942 56	.....	58,942 56	76,877 87
1833.....	62,901 15	\$15,750 00	78,651 15	68,948 73
1834.....	64,532 98	.....	64,532 98	74,668 96
1835.....	66,621 77	25,000 00	91,621 77	86,268 43
1836.....	67,961 02	15,000 00	82,961 02	89,370 70
1837.....	27,021 24	175,000 00	202,021 24	97,935 75
1838.....	35,234 52	.....	35,234 52	109,229 59
1839.....	66,311 83	.....	66,311 83	121,653 31
1840.....	71,675 91	.....	71,675 91	130,561 07
1841.....	72,760 20	97,000 00	169,760 20	109,758 82
1842.....	72,429 36	46,500 00	118,929 36	100,112 57
1843, (half year).....	37,417 18	58,500 00	95,917 18	49,430 86
1844.....	85,864 42	25,000 00	110,864 42	62,148 67
1845.....	88,074 34	25,000 00	113,074 34	168,016 20
1846.....	90,675 68	.....	90,675 68	68,678 70
1847.....	95,216 73	25,000 00	120,216 73	123,257 42
1848.....	97,989 26	12,000 00	109,989 26	140,995 50
1849.....	103,496 38	12,000 00	115,496 38	103,167 65
1850.....	106,437 49	15,000 00	121,437 49	162,379 67
1851.....	133,447 07	200,000 00	333,447 07	139,220 43
1852.....	134,393 26	200,000 00	334,393 26	203,115 23
1853.....	133,718 08	100,000 00	233,718 08	280,750 10
1854.....	146,576 31	.....	146,576 31	292,825 69
1855.....	148,733 43	200,000 00	348,733 43	345,987 46
1856.....	155,068 14	150,000 00	305,068 14	368,520 86
1857.....	167,325 29	250,000 00	417,325 29	354,053 90
1858.....	164,161 82	150,000 00	314,161 82	379,214 86
1859.....	178,195 59	150,000 00	328,195 59	349,890 36
1860.....	173,073 09	275,000 00	448,073 09	455,593 10
1861.....	155,172 43	175,000 00	330,172 43	308,918 13
1862.....	128,526 97	200,000 00	328,526 97	290,447 41
1863.....	118,307 74	200,000 00	318,307 74	198,933 60
1864.....	117,824 05	100,000 00	217,824 05	260,911 84
1865.....	128,656 30	150,000 00	278,656 30	348,472 82
1866.....	142,292 81	170,000 00	312,292 81	d 335,958 39
1867.....	231,596 91	200,000 00	431,596 91	e 415,580 53
1868.....	184,530 35	250,000 00	434,530 35	d 443,646 53
1869.....	176,957 95	200,000 00	376,957 95	d 391,296 89
1870.....	168,153 70	200,000 00	368,153 70	d 353,277 54
1871.....	293,592 14	250,000 00	543,592 14	d 437,493 86
1872.....	319,823 16	e 154,050 00	473,873 16	421,897 03
Total.....	6,763,965 86	4,705,994 34	11,469,960 20	11,241,155 97
Amount carried to surplus fund.....	.....	.....	.....	537 33
Balance remaining to credit of fund June 30, 1871.....	.....	.....	.....	121,028 97
Balance remaining to credit of fund June 30, 1872.....	.....	.....	.....	107,237 93
	.....	.....	.....	11,469,960 20

A comparison of the *expenditures* for 1872, as shown in the above table, with the statement of the cost of the service, as given in Table D, discovers an excess in this statement of \$25,633 92. The discrepancy is explained by the facts that this table shows the amount advanced out of the appropriation on warrants between July 1, 1871, and June 30, 1872, while Table D shows the actual expenditures by collectors and the indebtedness incurred between these dates. An examination of the accounts will show that a part of the money advanced was to meet indebtedness incurred for previous years, and that the remainder was money advanced in excess of the requirements at certain places.

a Received from sale of hospital at Charlestown, Mass.

b Includes \$4,068, cost of site, &c., for marine hospital at Chelsea, Mass.

c Includes \$27,903 39, cost of Chelsea hospital.

d The expenditures from 1866 to 1871, as represented in this statement, are less than the actual expenditures for those years by \$91,250 11, in consequence of various sums, aggregating that amount, received on account of sales of marine hospitals, having been erroneously credited as repayments.

e Includes \$4,050, being a part of the proceeds from the sale of the marine hospital at Vicksburg, Miss., sold by authority of the act of April 20, 1866.

NOTE.—The Supervising Surgeon acknowledges valuable assistance from Captain R. A. Bayley, of the Treasury Department, in preparing the foregoing table.

TABLE F.—*Supplementary statement showing the amounts of hospital money collected by the Navy Department from seamen employed in the Navy, from 1799 to February 26, 1811; at which latter date the hospital money resulting from the tax imposed upon naval seamen was created a separate fund, and placed under the direction of the Navy Department.*

Year.	Collections.	Paid into Treasury.
1799 } 1800 }	\$742 09	{ \$1,000 00 5,950 00
1801.....	6,070 20 4-6	7,685 33
1802.....	10,429 60 2-6	2,500 00
1803.....	9,441 03	.....
1804.....	5,425 02 4-6	.....
1805.....	3,396 10 1-6	.....
1806.....	8,613 05 4-6	.....
1807.....	6,088 78	.....
1808.....	4,592 60	.....
1809.....	2,069 11	38,513 96
1810.....	2,062 36	.....
1811, (to February 26).....	45 24	.....
Balance on February 26, 1811, carried to the credit of the navy hospital fund.....	.....	3,326 18 3-6
Total.....	\$58,975 47 3-6	\$58,975 47 3-6

TABLE G.—*Statement showing the location of marine hospitals; the date of the purchase of the site or the commencement of the construction; the date when first occupied; the total cost to June 30, 1872; the present condition or final disposition of the buildings; and the amounts received from the sales of those disposed of.*

Location.	Purchased or commenced.	Occupied.	Cost to date.	Condition or disposition.	Proceeds.
Norfolk, Va.....	1800	.....	\$22,395 10	Sold, 1869.....	\$15,613 80
Newport, R. I.....	.....	.....	.....	<i>a</i> .....	.....
Boston	{ Charlestown, Mass... 1802	1804	14,842 34	Sold, 1824.....	12,875 00
	{ Chelsea, Mass..... 1825	1827	32,168 06	Sold, 1897.....	54,803 38
	{ Chelsea, Mass..... 1860	.....	393,452 48	In use.....	.....
Charleston, S. C.....	{ 1815	1831	26,685 77	Sold, 1866.....	9,500 00
New Orleans.. { Right bank of river.. 1837	1832	1849 ?	122,772 70	Sold, 1866 <i>c</i> .....	.....
	{ New Orleans..... 1855	.....	539,090 84	Unfinished <i>d</i> .....	.....
Mobile, Ala.....	<i>e</i> 1838	1843	54,540 00	Leased for seamen.....	.....
Pittsburg, Penn.....	1842	1851	72,445 11	In use.....	<i>f</i> 20,550 96
Louisville, Ky.....	<i>b</i> 1843	1852	98,452 47	Leased for seamen.....	.....
Cleveland, Ohio.....	<i>b</i> 1844	1852	118,972 59	In use.....	.....
Natchez, Miss.....	<i>b</i> 1845	1852	66,750 00	Leased <i>g</i> .....	.....
Key West, Fla.....	1844	1845	34,174 84	In use.....	.....
Ocracoke, N. C.....	1843	1847	9,227 07	Abandoned <i>h</i> .....	.....
Paducah, Ky.....	1842	1852	58,525 77	Burned, 1868.....	<i>i</i> 6,571 34
Napoleon, Ark.....	<i>b</i> 1842	1855	62,290 83	Destroyed, 1868 <i>j</i>	30 00
Chicago.....	{ Chicago..... 1849	1852	64,070 98	Sold, 1864.....	132,000 00
	{ Lake View..... 1867	.....	360,674 09	Unfinished.....	.....
St. Louis, Mo.....	<i>l</i> 1850	1858	109,180 52	In use.....	.....
San Francisco, Cal.....	<i>m</i> 1851	1854	231,871 10	In ruins.....	.....

a Reported by the Secretary of the Treasury, February 16, 1802, to have been discontinued. No other record found.

b Sites selected by medical board of the Army, in 1837.

c Reported as sold in 1866 for \$300, but the amount does not appear to have been received.

d Completion of the hospital building impracticable.

e First site selected in 1837. Abandoned on account of defective title.

f From sale of a portion of hospital grounds in 1870.

g Building not required for a marine hospital; occupied at present by the State of Mississippi.

h Unoccupied and not required.

i From sale of land.

j Building and grounds washed away by the river.

k Site ceded by War Department. Hospital burned, October 10, 1871, before the property was delivered.

l Site ceded by War Department.

m Site set apart from Government land. Hospital slightly injured by an earthquake in 1868, and abandoned.

TABLE G—Continued.

Location.	Purchased or commenced.	Occupied.	Cost to date.	Condition or disposition.	Proceeds.
Evansville, Ind.....	1853?	1856	\$59,899 02	Sold, 1867.....	\$10,507 11
Portland, Me.....	1852	1859	122,590 88	In use.....	
Vicksburg, Miss.....	1853	1856	67,775 16	Sold, 1870.....	20,257 52
Pensacola, Fla.....	a		1,052 96		
Detroit, Mich.....	1855	1857	108,930 63	In use.....	
Cincinnati, Ohio.....	1856	b	182,665 48	Sold, 1866.....	70,500 00
Burlington, Iowa.....	1856	1858	29,996 84	Sold, 1867.....	6,000 00
St. Marks, Fla.....		1859	25,758 00	Transferred, 1867 c.....	
Rurlington, Vt.....	1855	b	39,572 30	Sold, 1866.....	7,164 41
Wilmington, N. C.....	1857	b	43,897 44	Sold, 1870.....	4,020 00
Galena, Ill.....	d 1857	1861	48,797 58	Sold, 1868.....	e 6,321 08
Port Angeles, W. T.....	f			Sold, 1868.....	165 00
Total.....			3,214,518 95		376,879 60

Detailed statement of the cost of each United States marine hospital building and site, from the organization of the Marine Hospital Service in 1798 to June 30, 1872.

HOSPITAL AT NORFOLK, VIRGINIA.

1800. Paid out of marine hospital fund	\$6,185 34
1816. Do.....do	6,500 00
1834. Do.....do	3,608 67
1840. Special appropriation	3,856 30
1849. Do.....do	1,645 04
1861. Do.....do	450 00
1870. Do.....do	149 75
	<u>22,395 10</u>

Sold in 1869 for \$15,613 80.

HOSPITAL AT NEWPORT, RHODE ISLAND.

From a report of the Secretary of the Treasury made February 6, 1802, it appears that a marine hospital had been established at Newport, and was discontinued prior to that date. No other mention of the hospital has been found.

HOSPITALS AT THE PORT OF BOSTON, MASSACHUSETTS.

Hospital No. 1, located at Charlestown.

1804. Paid out of the marine hospital fund	\$14,842 34
Sold in 1824 for \$12,875.	

Hospital No. 2, located at Chelsea.

1825. Cost of site, paid out of the marine hospital fund.....	\$4,068 00	
1827. Cost of construction, paid out of the marine hospital fund		27,603 39
1836. Special appropriation		496 67
		<u>32,168 06</u>
Sold in 1867 for \$54,803 38.		

a Work not commenced. Expenditures made from 1855 to 1858.

b Never occupied as a marine hospital.

c Transferred to the War Department.

d Includes the sum of \$1,011 08 for furniture.

e Note of \$1,000 outstanding.

f No record of the establishment of a marine hospital at Port Angeles, Washington Territory, has been found.

Hospital No. 3, located at Chelsea.

1856.	Special appropriation.....	\$96,399 63	
1857.	Do.....	92,751 13	
1858.	Do.....	26,541 72	
1859.	Do.....	54,764 83	
1860.	Do.....	14,058 00	
1861.	Do.....	1,684 69	
1866.	Do.....	1,796 75	
1867.	Do.....	40,100 00	
1868.	Do.....	43,868 27	
1870.	Do.....	2,195 68	
1871.	Do.....	9,393 63	
1872.	Do.....	9,898 15	
		<hr/>	\$393,452 48
			<hr/>
			440,462 88
			<hr/>

HOSPITAL AT CHARLESTON, SOUTH CAROLINA.

1817.	Cost of site, paid out of marine hospital fund.....	\$5,500 00	
1831.	Special appropriation.....	730 20	
1832.	Do.....	169 80	
1834.	Do.....	12,363 01	
1836.	Do.....	2,465 40	
1839.	Do.....	2,000 00	
1842.	Do.....	200 00	
1845.	Do.....	3,257 36	
		<hr/>	26,685 77
			<hr/>

Sold in 1866 for \$9,500.

HOSPITALS AT CHICAGO, ILLINOIS.

Hospital No. 1, at Chicago.

1849.	Special appropriation.....	\$377 00	
1850.	Do.....	16,100 00	
1851.	Do.....	18,900 00	
1852.	Do.....	14,312 43	
1853.	Do.....	22 57	
1855.	Do.....	1,526 00	
1856.	Do.....	5,997 46	
1857.	Do.....	891 71	
1858.	Do.....	292 00	
1859.	Do.....	4,221 97	
1860.	Do.....	185 35	
1863.	Do.....	493 27	
1864.	Do.....	581 00	
1865.	Do.....	170 22	
		<hr/>	\$64,070 98

Sold in 1864 for \$132,000.

Hospital No. 2, at Lake View, (near Chicago.)

1866.	Special appropriation.....	\$425 00	
1867.	Do.....	10,000 00	
1868.	Do.....	59,028 32	
1869.	Do.....	73,810 59	
1870.	Do.....	17,592 28	
1871.	Do.....	46,571 97	
1872.	Do.....	153,245 93	
		<hr/>	360,674 09
			<hr/>
			424,745 07
			<hr/>

Hospital building unfinished.

HOSPITAL AT MOBILE, ALABAMA—(LEASED FOR SEAMEN.)

1838.	Special appropriation.....	\$4,000 00	
1840.	Do.....	11,744 11	
1841.	Do.....	5,300 00	
1842.	Do.....	14,659 16	

1843.	Special appropriation.....	\$703 68
1844.	Do.....	3,593 05
1849.	Do.....	1,090 00
1851.	Do.....	2,050 00
1857.	Do.....	6,000 00
1859.	Do.....	5,400 00
		<hr/>
		54,540 00
		<hr/>

HOSPITAL AT PITTSBURG, PENNSYLVANIA—(IN USE.)

1842.	Special appropriation.....	\$10,253 00
1846.	Do.....	7,518 09
1847.	Do.....	2 61
1849.	Do.....	5,608 36
1850.	Do.....	16,152 64
1851.	Do.....	16,263 70
1852.	Do.....	8,780 50
1853.	Do.....	1,563 48
1860.	Do.....	6,030 00
1865.	Do.....	272 73
		<hr/>
		72,445 11
		<hr/>

A portion of hospital grounds sold in 1871 for \$20,550 96.

HOSPITAL AT LOUISVILLE, KENTUCKY—(LEASED OF SEAMEN.)

1843.	Special appropriation.....	\$6,000 00
1846.	Do.....	8,333 33
1849.	Do.....	4,000 00
1850.	Do.....	17,667 00
1851.	Do.....	12,000 00
1852.	Do.....	5,440 10
1853.	Do.....	2,000 00
1855.	Do.....	5,000 00
1856.	Do.....	7,484 18
1857.	Do.....	248 84
1860.	Do.....	1,734 90
1864.	Do.....	30 00
1867.	Do.....	16,689 65
1868.	Do.....	715 74
1869.	Do.....	11,621 37
1871.	Do.....	33 00
		<hr/>
		98,998 11
		<hr/>
Repayment in 1854.....		545 64
		<hr/>
		98,452 47
		<hr/>

HOSPITAL AT CLEVELAND, OHIO—(IN USE.)

1844.	Special appropriation.....	\$12,000 00
1846.	Do.....	6,000 00
1847.	Do.....	1,731 61
1849.	Do.....	2,500 00
1850.	Do.....	13,000 00
1851.	Do.....	13,853 00
1852.	Do.....	20,223 05
1853.	Do.....	2,000 00
1854.	Do.....	3,396 00
1855.	Do.....	7,253 04
1856.	Do.....	17,746 96
1858.	Do.....	1,144 00
1861.	Do.....	49 00
1863.	Do.....	778 43
1864.	Do.....	364 25
1866.	Do.....	8,000 00
1867.	Do.....	7,254 05
1868.	Do.....	140 35

1869.	Special appropriation.....	\$536 43
1870.	Do.....	369 79
1871.	Do.....	657 38
1872.	Do.....	94 50

	Repayment in 1862.....	119,091 84
		119 25

118,972 59

HOSPITAL AT NATCHEZ, MISSISSIPPI—(LEASED.)

1845.	Special appropriation.....	\$7,000 00
1849.	Do.....	6,500 00
1850.	Do.....	19,000 00
1851.	Do.....	6,750 00
1852.	Do.....	20,000 00
1855.	Do.....	4,502 98
1856.	Do.....	1,532 39
1857.	Do.....	1,500 00

	Repayment in 1854.....	66,785 37
		35 37

66,750 00

HOSPITAL AT KEY WEST, FLORIDA—(IN USE.)

1845.	Special appropriation.....	\$25,000 00
1851.	Do.....	600 00
1857.	Do.....	3,000 00
1860.	Do.....	400 00
1862.	Do.....	33 31
1863.	Do.....	548 00
1866.	Do.....	1,200 00
1869.	Do.....	96 82
1871.	Do.....	3,266 71
1872.	Do.....	30 00

34,174 84

HOSPITAL AT OCRACOKE, NORTH CAROLINA—(NOT REQUIRED.)

1845.	Special appropriation.....	\$1,100 00
1846.	Do.....	1,000 00
1847.	Do.....	5,274 00
1848.	Do.....	1,553 07
1860.	Do.....	300 00

9,227 07

HOSPITAL AT PADUCAH, KENTUCKY.

1846.	Special appropriation.....	\$1,000 00
1849.	Do.....	6,500 00
1850.	Do.....	12,000 00
1851.	Do.....	19,125 00
1852.	Do.....	11,000 00
1857.	Do.....	3,048 21
1858.	Do.....	4,702 47
1859.	Do.....	1,102 40
1860.	Do.....	55 28

	Repayment in 1854.....	58,533 36
		7 59

58,525 77

Building burned in 1868; ground sold in 1868 for \$6,571 34.

HOSPITAL AT NAPOLEON, ARKANSAS.

1849.	Special appropriation.....	\$4,000 00
1850.	Do.....	2,000 00
1851.	Do.....	35,250 00
1852.	Do.....	12,000 00
1853.	Do.....	2,000 00
1854.	Do.....	1,768 75
1855.	Do.....	2,202 15
1858.	Do.....	3,000 00
1859.	Do.....	210 22
		<hr/>
Repayment in 1854.....		62,431 12
		140 29
		<hr/>
		62,290 83

Washed away in 1868; remnants of the wreck sold for \$30.

HOSPITALS AT NEW ORLEANS, LOUISIANA.

Hospital No. 1, at Macdonough, opposite New Orleans.

1837.	Special appropriation.....	\$6,000 00
1839.	Do.....	35,015 00
1840.	Do.....	10,020 00
1841.	Do.....	7,350 00
1845.	Do.....	9,700 00
1846.	Do.....	20,036 07
1847.	Do.....	50 50
1848.	Do.....	21,823 00
1849.	Do.....	6,394 40
1850.	Do.....	1,192 03
1851.	Do.....	5,191 70
		<hr/>
		\$122,772 70

Reported as sold, in 1866, for \$300, but the amount does not appear to have been paid into the Treasury.

Hospital No. 2, at New Orleans—(unfinished.)

1855.	Special appropriation.....	\$12,403 49
1856.	Do.....	30,042 90
1857.	Do.....	56,101 26
1858.	Do.....	113,797 68
1859.	Do.....	183,008 44
1860.	Do.....	107,438 66
1861.	Do.....	7,326 12
1863.	Do.....	230 00
1864.	Do.....	19,542 29
1868.	Do.....	200 00
		<hr/>
		530,090 84
		<hr/>
		652,863 54

HOSPITAL AT ST. LOUIS, MISSOURI—(IN USE.)

1851.	Special appropriation.....	\$31,871 30
1852.	Do.....	20,484 00
1853.	Do.....	450 70
1854.	Do.....	20,574 37
1855.	Do.....	12,907 63
1858.	Do.....	1,100 00
1859.	Do.....	645 00
1860.	Do.....	214 00
1863.	Do.....	25 10
1867.	Do.....	5,204 81
1868.	Do.....	385 91
1869.	Do.....	5,170 58
1871.	Do.....	9,402 97
1872.	Do.....	744 15
		<hr/>
		109,180 52

HOSPITAL AT SAN FRANCISCO, CALIFORNIA.

1851.	Special appropriation.....	\$516 75
1852.	Do.....	13,853 36
1853.	Do.....	17,612 20
1854.	Do.....	148,017 69
1855.	Do.....	5,268 80
1856.	Do.....	16,070 00
1857.	Do.....	22,661 20
1864.	Do.....	1,379 40
1865.	Do.....	3,423 41
1866.	Do.....	1,084 60
1867.	Do.....	150 00
1868.	Do.....	305 11
1870.	Do.....	1,528 58
		<hr/>
		231,871 10
		<hr/>

Hospital slightly injured in 1868, and abandoned.

HOSPITAL AT EVANSVILLE, INDIANA.

1852.	Special appropriation.....	\$2,750 00
1853.	Do.....	2,830 40
1854.	Do.....	9,505 22
1855.	Do.....	21,177 37
1856.	Do.....	8,300 00
1857.	Do.....	7,598 86
1859.	Do.....	3,357 00
1860.	Do.....	2,211 47
1861.	Do.....	100 00
1862.	Do.....	20
1863.	Do.....	2,003 50
1865.	Do.....	65 00
		<hr/>
		59,899 02
		<hr/>

Sold in 1867 for \$10,507 11.

HOSPITAL AT PORTLAND, MAINE—(IN USE.)

1853.	Special appropriation.....	\$11,000 00
1854.	Do.....	137 00
1855.	Do.....	8,854 67
1856.	Do.....	34,354 70
1857.	Do.....	25,343 19
1858.	Do.....	14,050 32
1859.	Do.....	2,018 85
1860.	Do.....	989 75
1861.	Do.....	1,247 38
1862.	Do.....	3,510 00
1863.	Do.....	52 00
1864.	Do.....	250 00
1865.	Do.....	1,430 00
1866.	Do.....	1,061 54
1868.	Do.....	27 65
1869.	Do.....	4,526 55
1870.	Do.....	12,749 62
1871.	Do.....	849 46
1872.	Do.....	138 20
		<hr/>
		122,590 88
		<hr/>

HOSPITAL AT VICKSBURG, MISSISSIPPI.

1854.	Special appropriation.....	\$4,600 00
1855.	Do.....	553 00
1856.	Do.....	59,847 00
1857.	Do.....	762 58

1858. Special appropriation.....	\$1,762 58
1867. Do.....	250 00
	<hr/>
	67,775 06
	<hr/>

Sold in 1870 for. \$20,257 52.

HOSPITAL AT PENSACOLA, FLORIDA—(WORK NOT COMMENCED.)

1855. Special appropriation.....	\$804 10
1856. Do.....	192 19
1857. Do.....	30 57
1858. Do.....	26 10
	<hr/>
	1,052 96
	<hr/>

HOSPITAL AT DETROIT, MICHIGAN—(IN USE.)

1855. Special appropriation.....	\$28,218 12
1856. Do.....	15,259 87
1857. Do.....	29,476 21
1858. Do.....	21,954 94
1859. Do.....	2,849 50
1860. Do.....	3,500 00
1861. Do.....	835 37
1865. Do.....	235 54
1866. Do.....	1,605 46
1867. Do.....	523 95
1868. Do.....	169 40
1869. Do.....	1,645 45
1870. Do.....	12 72
1871. Do.....	790 49
1872. Do.....	1,853 61
	<hr/>
	108,930 63
	<hr/>

HOSPITAL AT CINCINNATI, OHIO.

1855. Special appropriation.....	\$7,329 42
1856. Do.....	36,155 58
1857. Do.....	15,108 33
1858. Do.....	64,381 20
1859. Do.....	53,516 77
1860. Do.....	2,044 22
1861. Do.....	3,920 00
1866. Do.....	209 96
	<hr/>
	182,665 48
	<hr/>

Sold in 1866 for \$70,500.

HOSPITAL AT BURLINGTON, IOWA.

1855. Special appropriation.....	\$106 85
1856. Do.....	4,602 35
1857. Do.....	8,520 59
1858. Do.....	10,250 67
1859. Do.....	3,037 40
1860. Do.....	2,547 73
1861. Do.....	605 00
1863. Do.....	46 25
1864. Do.....	250 00
	<hr/>
	29,996 84
	<hr/>

Sold in 1867 for \$6,000.

HOSPITAL AT ST. MARK'S, FLORIDA.

1856. Special appropriation.....	\$131 72
1857. Do.....	57 12
1858. Do.....	20,750 36

1859. Special appropriation	\$795 50
1860. Do	2,519 50
1861. Do	1,503 80
	<hr/>
	25,758 00
	<hr/>

Transferred to War Department in 1867.

HOSPITAL AT BURLINGTON, VERMONT.

1856. Special appropriation	\$2,283 75
1857. Do	17,614 77
1858. Do	19,190 25
1859. Do	209 50
1860. Do	38 00
1861. Do	20
1862. Do	88 63
1863. Do	112 68
1864. Do	36 52
	<hr/>
	39,574 30
	<hr/>

Sold in 1866 for \$7,164 41.

HOSPITAL AT WILMINGTON, NORTH CAROLINA.

1856. Special appropriation	\$40 00
1857. Do	198 71
1858. Do	11,567 71
1859. Do	20,903 76
1860. Do	11,135 86
1861. Do	51 40
	<hr/>
	43,897 44
	<hr/>

Sold in 1870 for \$4,020.

HOSPITAL AT GALENA, ILLINOIS.

1857. Special appropriation	\$7,551 10
1858. Do	15,088 63
1859. Do	18,015 22
1860. Do	7,547 98
1862. Do	245 00
1863. Do	349 65
	<hr/>
	48,797 58
	<hr/>

Sold in 1868 for \$6,321 08.

HOSPITAL AT PORT ANGELES, WASHINGTON TERRITORY.

A marine hospital at Port Angeles, Washington Territory, was sold in accordance with instructions contained in Department letter dated April 14, 1868, for the sum of \$165; but up to the date of closing this report no record has been found in the Department of the establishment of a marine hospital at that port.



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Treasury Department.

Marine-Hospital Service.

ANNUAL REPORT

OF THE

SUPERVISING SURGEON

OF THE

MARINE-HOSPITAL SERVICE

OF

THE UNITED STATES

FOR THE FISCAL YEAR 1873.

1 JULY 1872 to 30 JUNE 1873.

(John M. Woodworth, M. D.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1873.

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TO
THE HONORABLE
THE SECRETARY OF THE TREASURY.

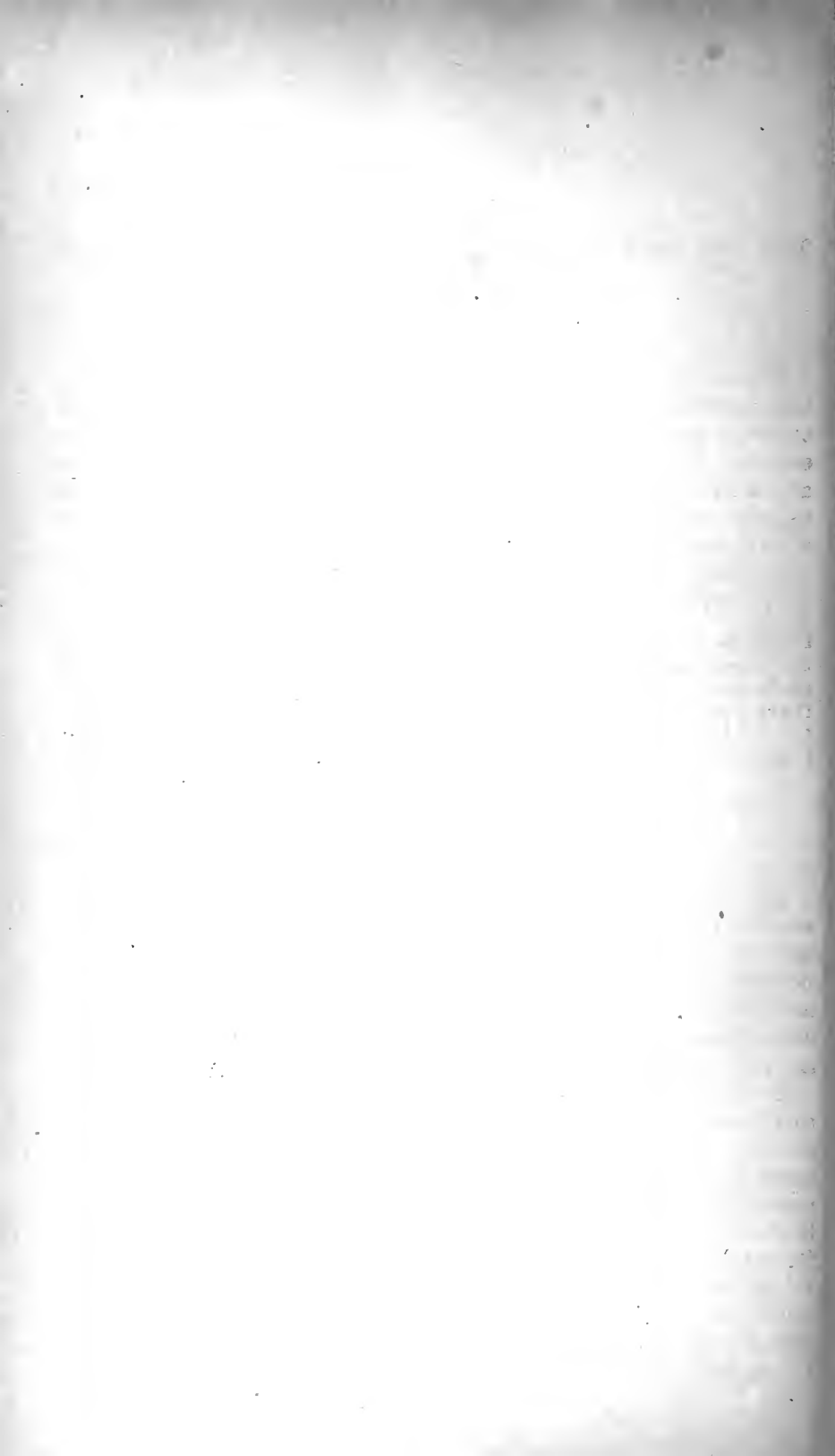
SIR: I have the honor to submit herewith a report of the operations of the Marine-Hospital Service of the United States for the fiscal year 1873, (1 July 1872 to 30 June 1873,) being my second annual report.

Very respectfully,
JOHN M. WOODWORTH,
Supervising Surgeon.

BUREAU U. S. MARINE-HOSPITAL SERVICE,
15 December 1873.



OPERATIONS
OF THE
UNITED STATES MARINE-HOSPITAL SERVICE:
1873.



THE MARINE-HOSPITAL SERVICE OF THE UNITED STATES DURING 1872-'73.

DURING the year ended June 30, 1873, 13,529 sick and disabled seamen were furnished medical and surgical relief; 12,697 seamen were maintained in hospital 420,160 days, or an average of about 33 days for each hospital patient; and 832 others, who were suffering from diseases and injuries of a character not requiring treatment in hospital, were relieved by furnishing them with medicines and appliances without admission to hospital.

The results obtained in the treatment of the 12,697 hospital patients are as follows:

Discharged, cured	8,927
Discharged, improved.....	1,975
Discharged, not improved.....	161
Deserted while under treatment.....	108
Died	646
Remaining under treatment June 30, 1873.....	880
<hr/>	
Total	12,697

The average daily number of hospital patients throughout the year was 1,151.

The total cost of the Service for the year was \$422,502.98. This amount includes the whole cost of the administration of the Service; the maintenance, care, and treatment of patients, and the medicines furnished them; the expenses attending the burial of those who died, and the entire outfit of the new marine hospital at Chicago. The total expenditures from the fund, including all these items, makes the average cost of maintaining and treating each patient, \$1.002 per day.

The hospital-money collections from seamen during the year amount to \$335,845.95, which is an increase of \$12,145.90 over the amount so collected in 1872, and an increase of \$47,700.53 over the amount collected in 1871, under the operation of the same law. This increase of receipts of hospital-money is mainly due to a more faithful collection of the tax. It is believed, however, that a large percentage of the lawful tax is still lost to the fund, as masters of vessels who construe the law loosely, and make their hospital-money returns accordingly, (and such cases are not wanting,) have no fear of the enforcement of the penalty named in the law, since it does not provide that any part of the forfeit-money shall go to the informer.

The large percentage of deaths from small-pox has not only raised the mortality rate of the Service, but the increased number of cases treated has augmented the total expenditures, and correspondingly increased the average daily cost of hospital-relief, since it has been found impossible to furnish proper care and medical treatment to seamen suffering from contagious diseases without largely increased compensation over that usually demanded for the care of those affected with ordinary diseases or injuries. Thus, while in 1872 there were only 131 cases of small-pox and 54 deaths, during the last year 286 cases were treated, with 136 deaths, the disease having prevailed as an epidemic of an unusually malignant character at a number of the Atlantic, Gulf, and inland ports of the United States.

While foreign seamen are received into marine hospitals of the United States, in accordance with the provisions of the act of Congress, approved May 3, 1802, which fixes the charge for their care at 75 cents per day, it so happens that relief is asked for them at ports where the cost is much above the general average; as, for instance, at Boston, Mass., where the average daily cost for each patient treated in 1873 was \$1.26, and at Key West, Fla., where it was \$2.28. The loss to the fund on this account is considerable, and the average cost of maintaining our own seamen is thus correspondingly increased.

To the foregoing causes of augmented expenditure should be added the increase of facilities for affording hospital-relief during the last year, such relief having been furnished in 72 customs districts in 1871, 81 districts in 1872, and 91 in 1873, and a larger number of seamen were also furnished relief in 1873 than in 1872.

PROGRESS OF THE RE-ORGANIZATION OF THE SERVICE.

The Marine-Hospital Service has undergone such a radical change through the operation of the act of 1870, that it has been thought its present status would be but imperfectly appreciated without a brief summary of its origin and growth, which, as here furnished, may also serve to show the wisdom of the action of Congress in providing through this act for the re-organization of the Service and the correction of many of the defects which formerly existed.

By the act of July 16, 1798, (1 Stat., 605,) Congress imposed a tax of 20 cents per month on every seaman of the United States employed in the foreign and coasting trades, and out of the moneys collected by authority of this act the President of the United States was authorized to furnish temporary relief to sick and disabled seamen; provided the moneys should be expended in the districts wherein collected.

This resolution was so far amended by the act of March 2, 1799, (1 Stat., 729,) as to authorize the expenditure of hospital-money within any part of the State where collected, or in the State next adjoining. The same act also extended the operations of the law so as to embrace the officers and seamen of the Navy.

By the act of May 3, 1802, (2 Stat., 192,) hospital-money collections were constituted a general fund. This act also made provision for relieving sick and disabled foreign seamen in marine hospitals of the United States at a charge of 75 cents per day.

Collections of hospital-money from officers and seamen of the Navy were constituted a separate fund for the Navy, by the act of February 26, 1811, (2 Stat., 650.)

By the act of March 1, 1843, (5 Stat., 602,) the provisions of the act of 1798 were extended to officers of vessels, the seamen of which were subject to hospital-tax.

By the act of June 29, 1870, (16 Stat., 169, 170,) a plan of re-organization of the Marine-Hospital Service was adopted, the hospital-tax (dues) was increased from 20, to 40 cents per month, and the appointment of a Supervising Surgeon of the Marine-Hospital Service was provided for, "whose duty it is, under the direction of the Secretary of the Treasury, to supervise all matters connected with the service."

This office was first filled in April, 1871, by the appointment of the present incumbent, and among the duties which he has found devolved upon him in this supervision, has been that of the construction of a code of rules and regulations in consonance with the scope and intent of the act.

The following analysis of the new code will serve to indicate much of the progress which has been made in the re-organization of the Service:

REGULATIONS UNITED STATES MARINE-HOSPITAL SERVICE, 1873.

As was observed in the last Annual Report, "the more strict adherence to the regulations [enforced during the preceding year] disclosed many defects in them," and led to the conclusion that their thorough revision was highly desirable. This revision, as a matter of fact, has been going on during the entire period of the present administration of the Service by circular letters and orders correcting abuses and remedying defects whenever found to exist. So that many of the provisions embodied in the volume of *Regulations of the United States Marine-Hospital Service*, 1873, which volume, with the approval of the Secretary of the Treasury, has been prepared and distributed since the close of the fiscal year, were already in successful operation; and the late work performed in the preparation of the volume, has been mainly that necessary to a symmetrical completion of the code and a logical arrangement of the subject-matter.

Although this is nominally the fourth volume of regulations for the Marine-Hospital Service, it is really the first under the present act, the one which it immediately supersedes being, with a few modifications, substantially that first published in 1856. During the first year of his secretaryship (1852-'53) Mr. Guthrie had prepared and put in force a code of "by-laws and regulations for the government of the respective

[marine] hospitals, so modified as to suit each locality, * * * and the charge of them in this Department so arranged that the accounts [were] required to be periodically rendered and a proper economy enforced." This appears to have been the first attempt to secure any systematic administration of the marine-hospital fund, and its principal result—as in the stricter adherence to the regulations during the present administration of the Service—seems to have been to reveal the abuses which had grown up under the previous *laissez faire* management. Thus, in his report for 1855-'56, Mr. Guthrie says: "The economical administration of the hospitals to the proper relief of the sailors who contribute to the fund is one of much interest, and has given the Department considerable anxiety, because of the tendency to improper and wasteful expenditure. It has been considered necessary to give new instructions as to the collecting and proper accounting for the hospital-fund, the provisions, medicines, and other supplies, the employment of stewards, nurses, and other servants, and the government and supervision of the hospitals."

These instructions were first published and carried into effect October 25, 1856, and were subsequently embodied in the *General Regulations under the Revenue and Collection Laws of the United States*, which laws were then, in accordance with a resolution of the Senate, undergoing revision for the first time since 1798. With but little modification, and this generally through the medium of an occasional circular, these regulations, first promulgated in 1856, and subsequently republished in 1861, remained in force until the passage of the present act re-organizing the Marine-Hospital Service, made it necessary to provide a new code of instructions for carrying the act into effect. Hence came the volume of *Revised Regulations* approved and enforced from August 2, 1870, but which was, as has been before remarked, with a few modifications, substantially that first published in 1856.

Acting for the proverbially improvident and reckless sailor as his fiduciary agent, in the direction and management of the trust-fund accruing from the tax on his wages, the Marine-Hospital Service is one of complex and delicate duties; dealing, on the one hand with the revenue-officers of the Government in the enforcement of the tax collection, and, on the other, with the various individuals through whom the fund is applied.

In the prosecution of these duties, it has been one of the objects of the present direction of the Bureau to secure as thorough a collection of hospital-moneys with as simple machinery as possible; and the multiplication of reports, etc., entailing unnecessary clerical labor on seafaring men unused to such work, is avoided by the new code. Through this simplification the number of *Forms* has been reduced nearly 25 per cent., while it is believed the efficiency of the Service has been increased in at least the same ratio by the reduction.

As from the nature of the case medical experience and skill must be

relied upon to determine the necessity for hospital-relief, the revenue officer, by the new *Regulations*, is relieved, as far as is practicable, from this duty, and his functions are limited to their legitimate sphere as fiscal agent of the Service. By this means it is hoped to relieve the fund of the burden of supporting malingerers and other imposters who have succeeded in the past, through lack of medical supervision, in making marine hospitals, to a large extent, mere eleemosynary institutions.

To aid the respective officers, fiscal and medical, in their specific duties, the *Regulations* are divided into sections, in which the subjects belonging to each are separately provided for, and their respective status and authority are clearly defined. Thus in Section I, (which treats of the Assessment and Collection of Hospital-dues, and Accounts and Reports of Hospital-money,) and in Section V, (which treats of Disbursements of the Marine-Hospital Fund,) the revenue officer, as fiscal agent, is paramount; while in Section II, (which treats of the Application of the Marine-Hospital Fund for the Relief of sick and disabled Seamen,) and in Section IV, (which treats of Hospitals for Seamen, their Organization, etc.,) the medical authority is superior. Such a natural and logical arrangement will, it is believed, inure to the good of the Service in preventing divided responsibility and conflicting authority.

Among the more important changes in the first section is one by which, while dispensing with triplicate returns, masters of vessels are required to preserve with their ship's papers, receipts filled out by the proper customs-officers, showing the due payment of hospital-tax for the enumerated officers and men of their respective crews. (Par. 5, 6, 7, and 8, *Reg. U. S. M-H. S.*, 1873.) These receipts are subject to inspection by the proper authorities, and the hope is entertained that through this measure a more uniform collection of the tax may be secured.

With the same end in view, *i. e.*, the increase of the fund from all legitimate sources, provision is now made that hospital moneys collected by United States consular officers shall, in the future, be accounted for to the Treasury Department. When the fact was made known to the Department of State that such collections were diverted to other than their legitimate uses through want of definite instructions, the Honorable the Secretary of State promptly authorized all consular officers to "keep separate accounts of hospital-money collected by them, and to make separate returns of the same to the Treasury Department in like manner as directed for customs-officers, except that said reports will be made quarterly, and will be forwarded through the Department of State." (Par. 18, *op. cit.*, p. 20.)

With the approval of the Secretary of the Treasury the application of the civil service system is now relied upon to secure in the corps proper of medical officers of the Marine-Hospital Service such a standard of attainments as will best subserve the interests of the Service and reflect credit upon the Department. To this end provision is made in Section III for the examination of applicants for appointment in the

corps of medical officers by "a board of surgeons, which will be convened from time to time by the Supervising Surgeon." (Par. 52, p. 25.)

To these medical officers is committed the immediate superintendence of the Service at ports where its extent is of sufficient magnitude to warrant their employment, either as surgeons in charge of hospitals (organized United States marine hospitals,) or as superintending surgeons at ports where relief is furnished in hospitals of the second class, (municipal or private hospitals.) In the rules for the assignment of these officers to duty it has been sought to remedy a serious defect of the previous system. Thus the custom-house being the most convenient place for the seaman at which to make application for hospital-relief, but being generally some distance, often several miles, from the hospital where the surgeon in charge is on duty, it is now provided that, "where the extent or exigencies of the service make it necessary, one additional medical officer will be assigned as assistant, *in which event one of the two medical officers shall be on duty at the custom-house* during the hours when it is open for the transaction of business." (Par. 56, p. 26.) And, in the same manner, "at large ports where no United States marine hospitals are established, a medical officer will be assigned to duty at the custom-house when the extent of the service makes it necessary." (Par. 57, p. 26.)

By this system, already successfully carried out to some extent, not only should the Service be more faithfully and intelligently administered than was possible under the old plan, but one source of great hardship to the sailor is removed by obviating the necessity which often formerly existed for his travel back and forth between custom-house and hospital. Under the new *Regulations* the sailor is enabled to apply directly to the medical officer for relief, and if, upon examination, his condition be found such as to require continued medical or surgical care, he is sent to hospital forthwith; while numbers of minor cases are relieved by medicines or appliances furnished at the surgeon's office without compelling the patient to go to hospital at all. In addition to these advantages the promptness with which medical or surgical assistance may be afforded in urgent cases, from the convenient location of the custom-house, is not to be overlooked.

In closing the consideration of this section concerning the administration of hospitals, etc., it may not be out of place to allude to the purely professional detail of the registration of diseases. The Marine-Hospital Bureau, under the sanction and approval of the Secretary of the Treasury, is the first organization in this country to adopt the "Provisional Nomenclature of the Royal College of Physicians," (London,) and so to aid in the attempt, approved by the American Medical Association at its last annual meeting, and by the American Public Health Association, at its session in May, 1873, to establish an international and standard nosology. In the preparation of this nomenclature "the most distinguished physicians and statisticians have recently lent their

aid," from which it is "expected that greater accuracy, certainty, and uniformity, for comparison, than heretofore will characterize the statistical records of disease alike in civil life and in the public services."* By the adoption of this system the hospital-records, which, in the absence of any uniform nomenclature, have been heretofore valueless for comparative study and consequent profit, will be available in the future in determining many questions as to the effects of sea-faring pursuits on health and life, and may furnish the sanitariat the basis for important action concerning the seaworthiness of sailors.†

With reference to Disbursements of the Marine-Hospital Fund and Official Correspondence, which form, respectively, the subjects of the fifth and sixth sections of the new *Regulations*, the most important modifications consist in the simplification of routine duties and the dispensing with all unnecessary official papers. Prior to April 23, 1873, collectors of customs were required to forward to the Department monthly "estimates" of the amounts necessary to meet the expenses of each month, and upon these "estimates" remittances of funds were made from the Treasury. By circular order of above date the monthly estimates were abolished, and remittances of the sums actually needed were thenceforward made on receipt of a report of the transactions of the Service during the month. This plan having been found to work satisfactorily, it is embodied in paragraphs 106-111, inclusive, pp. 33, 34.

Mere formal letters of transmittal accompanying reports, etc., are no longer required; and throughout this portion of the work it has been attempted to secure the same directness and business methods as obtain in private mercantile affairs.

Among the minor changes may be noted the reduction in the period of duration of permits for hospital-relief. Notwithstanding that greater care is exercised in admissions, from which it follows that, as a rule, the character of hospital cases is graver than formerly, the average period of treatment is found to be not much over thirty-three days. Under these circumstances the permit for four months, which has been the rule since 1798, has been reduced to two months, and cases needing treatment for a longer period must be reported to the Department, thus enabling the Bureau to prevent, by its supervision, the unnecessary retention of patients in hospital.

Paragraph 62 (p. 27) may also be alluded to as correcting one of the minor evils. Since it is essential that a medical officer should be constantly in attendance with the sick and disabled, it has been customary to provide surgeons with quarters and subsistence in organized hospitals of Class I. This had gradually grown into furnishing household

*AITKEN.

†The classification of diseases in the Mortality Statistics of the IXth *Census* was based upon this *Nomenclature* by the advice of Drs. WOODWARD and BILLINGS, U. S. A., to whom the matter was referred, through the Surgeon-General of the Army, by the Honorable FRANCIS A. WALKER, Superintendent of Census.

servants and subsisting them, as well as the surgeon and his family, without regard to the extent of the family or restriction upon the number of servants. Such a custom could not fail to result injuriously by making unequal compensations of surgeons and increasing their cost to the Service. The paragraph above cited directs that medical officers of hospitals (Class I) will be provided with furnished apartments, fuel, and lights, where it can be done with convenience; but they will be required to supply subsistence for themselves, their families, and household attendants.

A synopsis of the various laws relating to the Service prefaces the regulations proper, and medical supply and diet tables, etc., are given in the Appendix.

While it is believed that these *Regulations* will, to some extent, facilitate the labors of those engaged, and obviate some of the difficulties which have been found to exist, in carrying out the designs of Congress in the administration of the Marine-Hospital fund, it is not claimed that they are perfect, or that they will not need supplementing and modifying in the future; for added experience and changed conditions will, undoubtedly, disclose shortcomings and defects. Even now, causes are apparent from which may arise the necessity for a revision; and among these may be mentioned some of the defects in

EXISTING LAWS.—PROSPECTIVE LEGISLATION.

Experience has shown that the laws governing the Marine-Hospital Service, and upon which these *Regulations* are based, are not so explicit as is to be desired, and that, consequently, they prove defective in operation in some respects, while in others they work manifest injury to the Service. Among the more prominent of these defects may be enumerated the following:

I.—The term “seaman” is not defined, and, therefore, the assessment and collection of hospital-dues is not uniformly enforced.

II.—The vessels of the Revenue Marine Service, Light-house Service, Coast-Survey Service, and of the Engineer Corps of the Army, are not included within the provisions of the law; hence the seamen employed on said vessels are excluded from the benefits of the hospital fund.

III.—The rate of charge for the care of foreign seamen, which was fixed by the act of May 3, 1802, is much less than the actual cost of the care and treatment of such patients, and the loss to the fund on this account amounts to several thousand dollars annually. It is but reasonable that the charge for such patients should cover the cost of medicines, subsistence, washing, and nursing.

The Supervising Surgeon would, therefore, in this connection, respectfully renew his former recommendations—

That the term “seaman,” be so defined as to include all officers and employés on such vessels as are subject to hospital-tax;

That Congress be asked so to amend the act of June 29, 1870, (16 Stat.,

169, 170,) as to include within its provisions all officers and seamen of the vessels of the Revenue Marine Service, of the Light-house Board, of the Coast Survey Service, and of the Engineer Corps of the Army, who do not regularly belong to the Army or Navy;

Also, that section 5 of the act of May 3, 1802, (2 Stat., 193,) which fixes the rate of charge for the care of foreign seamen at 75 cents per day, be so amended as to subject such seamen, when admitted to marine hospitals of the United States, to a charge equal to the average daily expenditure for American seamen, at the hospital where such foreign seamen are maintained.

TAX-PAYING SEAMEN IN QUARANTINE HOSPITALS.

A much more serious evil than either of the foregoing, and one not so easy of solution, is the injustice to which tax-paying seamen are frequently subjected by being detained in State quarantine hospitals, and thence compelled to pay the local charges for care and treatment.

As quarantine deals almost exclusively with the mercantile marine, it follows that seamen furnish by far the largest number of quarantine patients, the port of New York—where, in some years, immigrants are detained in considerable numbers—alone excepted. A large majority of these seamen belong to registered, enrolled or licensed vessels of the United States which pay hospital-tax, and the crews of which are consequently entitled to relief without other charge or expense, the law expressly contracting to provide “for the care and relief of sick and disabled seamen employed” on such vessels. Hence, when one of these seamen is ordered into quarantine hospital by the health-officer of the port, and, at the termination of his treatment, a bill for the same is presented to the master or owner of his vessel, the latter naturally seeks the repayment of such bill from the marine-hospital fund; and it then becomes the duty of this Bureau to determine the validity of the claim, and to authorize or refuse its payment.

To the successful fulfillment of its obligations as trustee of the fund, and especially to secure an economical and equitable application thereof, the Bureau has found certain checks requisite. Of these the essential ones are the master's certificate of payment of hospital-dues, by which is established the right to relief, and the surgeon's certificate of sickness or disability, by which is shown the necessity for such relief; and when these are furnished a permit is at once issued, which becomes the recognized voucher for a claim upon the fund from the date, and for the period when granted.

The whole history of the Service shows the necessity for some such system; and the test of nearly a quarter of a century's experience has proven this to be the simplest and most efficient yet devised.

In deference, however, to what are claimed to be the exigencies of local quarantines, and with the view of securing, to the fullest extent practicable under the circumstances, the benefits of the fund to those

entitled to them, these requirements have been so modified as to accept the certificate of the local quarantine physician instead of that of the regular medical officer of the Service, as proof of necessity for relief, and every other proper concession has been made, but with only partial success.

Under the present administration of quarantine at the port of New York, and at one or two other ports, the necessary evidence is promptly presented by the quarantine officers, permits are as promptly issued by the Marine-Hospital Service, and no difficulty is experienced in furnishing relief through the hospital-fund to all who are entitled to it. This demonstrates that there is no unavoidable obstacle in the way of enforcing the necessary provisions of quarantine without infringing upon the equally necessary regulations of this Service. The quarantine of the port of New York is the most extensive and elaborate, as it is, at present, unquestionably the best administered and most efficient system in the world; the vessels of all nations throng the harbor bringing from all climes the most diverse cargoes and crews; the small-pox and typhus and cholera of an immense immigrant service, and the fevers of the tropics, continually threaten and demand an unremitting vigilance. And yet this vigilance is exercised, and the health of the port is perfectly protected, in entire harmony with the regulations necessary to insure the care and relief promised by the Government to the sick and disabled seaman.

But as there is no specific authority to compel the State quarantine official to such action, this has been assumed to be a voluntary matter entirely within his discretion. As a consequence of this assumption, when the health-officer at a port chooses to violate the rights of the tax-paying seaman by ignoring the simple but indispensable regulations established in the interest of the seaman himself, this Bureau is not only debarred all supervision of the relief furnished, but is deprived of the information which would enable it to audit claims for compensation for such relief.

During the discussion by Congress of the assumption of national control over quarantine, it is hoped that this phase of the subject may be considered, to the end that the Service may be relieved from a serious complication, as well as that a colorable cause of complaint may be taken away from masters of vessels and their men.

MEDICAL INSPECTION OF SEAMEN BEFORE SHIPPING.

While the Service, under the operation of the present act, gives promise of becoming eventually self-sustaining, the percentage of relief made necessary by causes which are, in a large measure, avoidable, is so great as to materially retard this desideratum. Aside from cases of such purely preventable diseases as small-pox, syphilis, scurvy, etc., it is at least worthy of consideration how far a medical inspection of seamen before shipping would operate to reduce the cost of the Service by

eliminating a class of patients who alternate between the hospital and the forecandle, with a decided preponderance toward the former.

The attention of the Supervising Surgeon was attracted during his earliest inspections of hospital patients by the numbers among them who, obviously, had never been physically fit for the duties, the exposure, the hardships and privations of a sea-faring life. That such cases must prove an unjustifiable burden upon the marine-hospital fund, was an inference which has been abundantly sustained by subsequent experience.

A wider view of this subject of the "unseaworthiness of sailors," shows the above, however, to be a minor evil as compared with the loss of life from shipwreck due, as is alleged among other causes, to the physical incompetency of the crews. In the discussion following Mr. Plimsoll's agitation of this subject of frequent shipwreck, the London *Lancet* asserted that ten per cent. of all the men who ship are physically unfit for duty; while Captain Williams, in testifying as to the causes which led to the loss of the *Atlantic*, stated that "ten good seamen out of forty" would be an unusually sound crew. The English law providing for a medical examination of seamen is, according to a recent report of the Board of Trade to Parliament, practically a dead letter, because the provision is merely declaratory—the "examination can be made, provided the owner and the men agree to it, and the owner pays for it."

In view of the revival of American shipping, and of the fact already presented, viz., of an avoidable burden upon the Marine-Hospital Service, the suggestion is respectfully offered for consideration whether it may not yet be found advisable to forbid, by statute, hospital-relief at the expense of the fund in any case where it is evident that the applicant was physically unfit for sea-life when shipped. This would make a medical examination before shipping, a matter of course; and, in order to avoid the miscarriage of the measure, it is further suggested that the medical officers of the Service might be employed to make such examination without charge either to owner or men.

UNITED STATES MARINE-HOSPITAL BUILDINGS.

The magnificent structure for the marine hospital at the port of Chicago,* which building was commenced in the early part of 1867, finished during the past summer, and opened for the reception of marine patients on the 17th of November, 1873, is the most important addition to the list of marine-hospital buildings for many years.

The building, which is located at Lakeview about five miles north of the harbor, is of stone; and, in addition to being the finest structure of its kind in the United States, is especially noteworthy as being the first innovation on the old defective plan, of wards divided by closed

*See Appendix A.

corridors, which had been followed by the Government since 1837. As Congress has indorsed the plan of hospital construction, recommended in the first annual report of the Supervising Surgeon, (1872,) by providing for the erection, at San Francisco and New Orleans, of pavilion hospitals to be constructed of wood and of simple architectural design, it is probable that the Chicago marine hospital will be the last one constructed on a scale of such magnificence.

Of the thirty-one hospitals which have been built by the Government since the organization of the Marine-Hospital Service, fourteen have been sold; one was transferred to the War Department; one abandoned; one burned; one destroyed by a flood, and one by a hurricane; one was injured by an earthquake and abandoned; one remains unfinished, its completion being impracticable; and ten remain in use, located as follows: at Chelsea, Mass., Chicago, Ills., Cleveland, Ohio, Detroit, Mich., Louisville, Ky., Mobile, Ala., Pittsburgh, Pa., Portland, Me., Saint Louis, Mo., and Key West, Fla.*

The pavilion marine hospital, authorized by the last Congress to be erected at San Francisco, has not yet been commenced, for the reason that the War Department decided not to relinquish its control of the site selected on Angel Island, in the Bay of San Francisco. Another site at Mountain Lake, a Government reservation on the main land, four miles from the port, has been selected, pending the formal consent of the War Department.† A detailed description, with plans of the proposed hospital, is given in the Appendix A, *Hospitals and Hospital Construction*.

The condition of the marine hospital at Pittsburgh is unchanged since the last annual report. The building is entirely unfit for use as a hospital, and its surroundings are disagreeable and unhealthy.

Despatches from Key West bring intelligence of extensive injury done to the roof of the marine hospital of that place by a recent hurricane.

The marine hospitals at Detroit, Cleveland, Louisville, and Portland are in need of extensive repairs. All of these hospitals are constructed with closed corridors dividing the wards, obstructing the light and ventilation, and complicating the administration. None of them can be reconstructed and made into healthful hospital-buildings. The suggestion is, therefore, offered that it would be unwise, both in a sanitary and an economical point of view, to make any extended alterations in, or repairs upon, these buildings, unless for the purpose of converting them into administrative buildings, with pavilion wards for the sick built on the adjoining grounds and connected with them by corridors.

* At the other principal ports of the United States, where hospital-relief is furnished, (eighty-one in number,) sick and disabled seamen are cared for in private or municipal hospitals at rates authorized by the Treasury Department.

† Since writing this report the War Department has also declined to relinquish its claim to the Mountain Lake site.

PROPOSED NEW HOSPITALS.

Under the old system of furnishing hospital-relief by contract with the lowest bidder, it occasionally happened that the per capita cost of relief so furnished at a given port was less than the cost in marine hospitals built and maintained by the Government at adjoining ports. Such an impression was this apparent economy allowed to produce in the incidental attention then paid to the Service, that a sentiment of decided opposition developed against the construction and maintenance of hospitals by the Government; and as early as 1854-'55 the Report of the Secretary of the Treasury, the Hon. James Guthrie, contained a recommendation to Congress urging the consideration of the question, "whether the contract-system might not be advantageously extended to many places where the United States have hospitals."

This view of the subject continued to obtain under Mr. Secretary Cobb, and the contract-system was gradually substituted wherever it was practicable to do so.

It is probable that the resort to this system was induced to a still greater extent by the character and location of the marine hospitals then constructed or in process of construction, and of which the following may be taken as representative specimens:

Hospital at Burlington, Iowa, authorized in 1854; site purchased in January, 1856; building completed, and surgeon and employes appointed, in March, 1858; first patient admitted during the period between May 1 and December 31, 1861; four more admitted between September, 1863, and January, 1864: August, 1864, the management was transferred to the Army for the use of sick and wounded soldiers; building and grounds sold in 1867 for \$6,000; aggregate cost, \$29,996.84.

Hospital at Burlington, Vt., erected during 1856-'58; never occupied "in consequence of the lack of patients;" sold in 1866 for \$7,164.41; cost \$39,572.30.

Hospital at Wilmington, N. C., built during 1858-'60; cost, \$43,897.44; sold in 1870 for \$4,020, never having been used as a marine hospital.

Hospital at Galena, Ill., completed in 1859; organized and opened in the spring of 1861; organization maintained four and a half years, with rarely more than one or two patients, and often with empty wards; sold in 1868 for \$7,321.68: cost, \$47,797.58.

With such an exhibit it is hardly to be wondered at that the contract-system should have been resorted to; but even then its evils were beginning to attract attention, and Mr. Secretary Chase, in his report for 1860-'61, though repeating that "the number [of marine-hospital buildings] has been increased beyond necessity or utility," and urging "that no new structures be undertaken except in cases of the clearest expediency or necessity," nevertheless studiously avoids any recommendation of this system. Subsequently, the complaints and exposures of the evils to which seamen were subjected by being thus farmed out to the lowest bidder, increased to such an extent as to lead to the passage of the act of 1870, re-organizing the Service, and, finally, to the insertion of a clause in the act of June 10, 1872, (17 Stat., 417,) forbidding any expenditure in this manner.

This retrospect seems proper in respectfully renewing the recommendation made in the report of the Supervising Surgeon last year, for the erection of a pavilion marine hospital, of two-hundred-bed capacity, at the port of New York; which renewal is made with a full appreciation of the bearing of the foregoing facts. The Supervising Surgeon, from a careful study of the subject, is led to believe that the comparative increased cost of the Service at organized hospitals is due, intrinsically, to their location at ports where the number of patients is not great enough to warrant the maintenance of a hospital staff and establishment. But where the number of patients is sufficient to fairly employ such a staff and establishment as it was at Cleveland, Detroit, and Saint Louis, during 1871-'72, and at Saint Louis during 1872-'73, the returns show that the Service is more economically administered under such auspices than under any other. The average per diem cost of the relief furnished at the ports mentioned, for the past two years under the present supervision, is 94 cents, as against a general average of 99 cents per diem for all relief furnished.

And this is entirely apart from the question of efficiency, and of freedom from the complications which are almost inseparable from the administration at a large port, where relief is furnished in a number of separate private or municipal hospitals, often remote from each other. At the port of New York, for example, over 38,000 days of hospital relief were furnished last year, in six different hospitals, widely scattered, and necessitating an immense amount of detail labor from the superintending surgeon at the port. This labor involves, among other duties, the responsibility of seeing that patients are properly and skillfully treated; that they are not exposed to epidemic or hospital diseases while in hospital,* and that they are not detained in hospital longer than necessary, to become a burden upon the fund. This responsibility, which would, of course, exist in the conduct of an organized hospital, is increased six-fold in this case by the multiplication of hospitals to be supervised.†

A pavilion hospital, suitably located at the port of New York, so as to be readily accessible, constructed upon the principles set forth in Appendix A, and administered with the same zeal, economy and skill that the superintending surgeon at that port has already manifested in the more complex and onerous duties of his present position, comes, it is conceived, within the category of "cases of the clearest expediency and necessity."

In renewing the recommendation, it is further suggested that the hospital be located on Oyster Island, a reef in New York Bay, south of Bedloe's Island, and which was ceded to the United States A. D. 1800.

* In this connection see page 50 *et seq.* of Appendix to this Report.

† Patients are sent to more than one hospital, sometimes to avoid local jealousies and ill-feeling; sometimes to secure the benefits of competition; but, generally, because it is impracticable to provide for the accommodation of all the marine patients at a port in any one private or municipal hospital.

Only small portions of the island are visible at low water, which would necessitate "filling in" to make the requisite ground; but the expense attending this would not be nearly so great as the purchase of a site, even if one could be obtained convenient to the port which would be free from malarial influences.

The recommendation is also renewed for the sale of the old marine hospital and grounds at Pittsburgh, and the use of such portion of the proceeds as may be necessary for the purchase of a site in a more healthful locality, for the erection thereon of a pavilion hospital of thirty-bed capacity, with a small detached ward for the treatment of seamen suffering from contagious diseases.

An organized hospital at this port is a necessity, because there are no private or municipal hospital facilities in Pittsburgh adequate to the demands of the Service. The grounds are so valuable for manufacturing-establishments—the proximity of existing rolling-mills and blast-furnaces, in fact, renders the site untenable for hospital purposes—that they would probably sell for double the amount necessary to secure a suitable location, and to erect thereon a hospital constructed on the principles already indorsed by Congress. So that this measure, instead of calling for expenditure, would in reality be a source of addition to the marine-hospital fund.

The maintenance of such hospital might, if it be deemed advisable, be made contingent upon the provision that if the average per diem cost of relief at such hospital in any year shall exceed the general average cost of all relief furnished during the same year—surgeon's salary and wages of employés to be included in estimating such cost in the first instance, and the total cost of the Service to be, in like manner, and as it is now, included in determining the general average cost—then it shall be lawful for the Secretary of the Treasury to lease said hospital to any suitable person or persons who will agree to furnish relief as required for marine patients at rates not to exceed the general average per diem cost of relief, year by year.

STATISTICS.

The following statements and tables embrace a summary statement of operations of the Service for the past year; a detailed statement of hospital-relief furnished, daily per capita, and total cost of the same, and amount of hospital-dues collected during the year; a table showing the amounts of hospital-money collected, the appropriations made by Congress to supply deficiencies, and the annual expenditures on account of the Marine-Hospital Service from October 1, 1798, to June 30, 1873; a summary statement of the locations, cost, and disposition of United States marine hospitals; a classified statement of the diseases and injuries of seamen treated in marine hospitals; and a supplementary table showing the causes of mortality among seamen in hospital during the year; all of which, with the foregoing, are respectfully submitted.

I.—Summary Statement of Operations of the United States Marine-Hospital Service for the fiscal Year ended June 30, 1873.

Number of sick and disabled seamen cared for at the expense of the Marine-Hospital fund in marine and other hospitals.....	12,697
Number of sick and disabled seamen cared for at the expense of the Marine-Hospital fund without admission to hospital, (office-relief).....	832
Total number of seamen furnished relief.....	13,529
Number of days' hospital-relief furnished	420,160
Number of days' office-relief furnished	1,215
Total number days' relief furnished.....	421,375
Average per diem number of patients maintained in hospital.....	1,151
Average number of days' treatment for each hospital-patient.....	33
Percentage of deaths of hospital-patients.....	5.09
Total expenditures and indebtedness incurred on account of Marine-Hospital Service.....	\$422,502 98
Average per diem cost for each patient, calculated on the basis of total cost of the Service for the year.....	\$1.002
Amount of hospital-money (dues) collected *	\$335,845 95
Increase of hospital-money collections over previous year, 1872.....	\$12,145 90
Increase of hospital-money collections over the year 1871.....	\$47,700 53
Number of ports at which relief was furnished either in United States marine, local, or extemporized hospitals.....	91
Number of ports at which hospital-money (dues) was collected.....	127

* Includes all collections of dues for the year, a few of which, at some remote ports, had not been deposited and covered into the treasury at the close of the fiscal year.

II.—Statement of Hospital-relief furnished during the fiscal Year, &c.—Continued.

States and ports.	Patients in hospital July 1, 1872.	Admitted during the year.	Discharged.	Died.	Remaining in hospi- tal June 30, 1873.	Relieved, not sent to hospital.	Aggregate number furnished relief.	Number days' relief in hospital.	Number days' office- relief.	Aggregate number days' relief fur- nished.	Total cost.	Daily pre capita cost.	Tax collected.
NEW YORK—Con'd.													
New York.....	68	1,174	1,109	60	73	447	1,689	38,023	481	38,504	\$34,069 28	\$0 58	\$56,905 38
Niagara.....													107 93
Oswego.....	3	18	19	1	1		21	387	8	395	901 00	2 28	1,556 95
Ogdensburg.....		3	2		1		3	110		110	95 00	86	269 92
Plattsburg.....		1	1				1	9		9	9 00	1 00	406 70
Rochester.....													163 26
Sag Harbor.....		7	7				7	686		686	473 50	69	871 96
Total.....	85	1,332	1,269	65	83	447	1,864	44,309	489	44,798	39,219 12		69,252 60
NEW JERSEY.													
Bridgeton.....													2,788 00
Bargaintown.....		5	3		2		5	158		158	\$158 00	\$1 00	1,496 39
Jersey City.....		19	15	3	1		19	593		593	474 50	80	
Lambertown.....													431 30
Newark.....													1,036 27
Perth Amboy.....													2,905 85
Tuckerton.....	2	39	39	1	1		41	1,410		1,410	1,437 60	1 01	693 01
Total.....	2	63	57	4	4		65	2,161		2,161	2,070 10		9,350 82
PENNSYLVANIA.													
Erie.....						10	5		5	5	15 75	3 75	1,308 87
Philadelphia.....	37	432	409	21	39	1	470	11,807	1	11,808	13,941 88	1 18	17,336 39
Pittsburg.....	5	166	155	5	11		171	5,390		5,390	6,775 94	1 26	4,895 54
Total.....	42	598	564	26	50	11	646	17,197	6	17,203	20,733 57		23,540 80
DELAWARE.													
Wilmington.....													1,918 77
MARYLAND.													
Annapolis.....													391 14
Baltimore.....	35	479	465	27	22		514	14,542	4	14,546	10,584 40	73	16,701 07
Crisfield.....		1		1			1	4		4	64 00	16 00	5,755 24
Town Creek.....													174 60
Total.....	35	480	465	28	22		515	14,546	4	14,550	10,648 40		23,022 05
DIST. OF COLUMBIA.													
Georgetown.....	9	85	87	5	2		94	4,060		4,060	2,942 50	72	2,008 69
VIRGINIA.													
Alexandria.....		6	4		2		6	300		300	306 00	1 02	632 81
Eastville.....													2,123 73
Norfolk.....	36	314	293	22	35	6	356	13,365	6	13,371	13,532 50	1 01	3,659 36
Petersburg.....													137 47
Richmond.....	2	35	32	2	3		37	1,412		1,412	1,425 00	1 01	720 10
Tappahannock.....													487 50
Yorktown.....													774 50
Total.....	38	355	329	24	40	6	399	15,077	6	15,083	15,263 50		8,535 47
WEST VIRGINIA.													
Parkersburg.....													1,166 85
Wheeling.....	1	17	14		4		18	848		848	74,907 00	88	1,232 18
Total.....	1	17	14		4		18	848		848	74,907 00		2,399 03

II.—Statement of Hospital-relief furnished during the fiscal Year, &c.—Continued.

States and ports.	Patients in hospital July 1, 1872.		Admitted during the year.		Discharged.	Died.	Remaining in hospi- tal June 30, 1873.	Relieved, not sent to hospital.	Aggregate number furnished relief.	Number days' relief in hospital.	Number days' office- relief.	Aggregate number days' relief fur- nished.	Total cost.	Daily per capita cost.	Tax collected.
NORTH CAROLINA.															
Beaufort	1		1						1	15		15	\$14 57	\$0 97	\$620 33
Edenton													at 00		565 82
New Berne	2	20	20	1	1				22	309		309	1,006 88	3 25	981 82
Wilmington	5	82	80	5	2				37	3,006	1	3,007	1,898 70	63	1,420 06
Total	7	103	101	6	3				110	3,330	1	3,331	2,921 15	.....	3,588 03
SOUTH CAROLINA.															
Beaufort		3	3						3	14		14	18 00	1 29	96 94
Charleston	11	178	167	5	17	2			191	5,389	4	5,393	5,433 50	1 01	2,838 81
Georgetown						2			2		2	2	10 00	5 00	227 01
Total	11	181	170	5	17	4			196	5,403	6	5,409	5,461 50	.....	3,162 76
GEORGIA.															
Brunswick		1	1						1	26		26	54 00	2 08	427 21
Savannah	12	245	231	12	14				257	9,480		9,480	9,576 00	1 01	2,698 80
Saint Mary's															150 84
Total	12	246	232	12	14				258	9,506		9,506	9,630 00	.....	3,276 85
FLORIDA.															
Appalachicola	3	22	23	1	1				25	954		954	950 28	1 00	769 41
Cedar Keys						2			2		10	10	10 00	1 00	301 50
Fernandina															635 77
Jacksonville		78	73	1	4	1			78	1,771	1	1,772	2,974 63	1 62	1,279 86
Key West	8	107	104	9	2	43			115	2,466	68	2,534	5,738 37	2 27	2,113 92
Pensacola	5	184	171	9	9	5			189	6,599	5	6,604	7,354 90	1 11	1,368 62
Saint Augustine															25 92
Total	16	391	371	20	16	51			409	11,790	84	11,874	17,028 20	.....	6,495 00
ALABAMA.															
Mobile	36	285	271	17	33				321	18,530		18,530	14,303 25	77	2,545 59
MISSISSIPPI.															
Natchez b.		3	1	1	1				3	28		28			51 63
Shieldsborough															879 65
Vicksburg	2	161	130	27	6				163	4,296		4,296	4,512 00	1 05	805 99
Total	2	164	131	28	7				166	4,324		4,324	4,512 00	.....	1,737 27
LOUISIANA.															
Franklin															868 69
New Orleans	44	633	579	51	47	89			766	24,973	159	25,132	28,722 50	1 10	17,199 14
Shreveport		102	79	8	15				102	5,001		5,001	7,110 00	1 42	.....
Total	44	735	658	59	62	89			868	29,974	159	30,133	35,832 50	.....	18,067 83
TEXAS.															
Brownsville		4	4						4	174		174	174 00	1 00	252 54
Corpus Christi															300 31
Galveston	25	473	458	20	20				498	12,770	3	12,773	9,863 60	77	3,592 42
Indianola	1	19	18	2					20	624		624	956 00	1 53	640 61
Total	26	496	480	22	20				522	13,568	3	13,571	10,993 60	.....	4,785 88

a This charge is for medical examination and transportation of patient to Wilmington, N. C.

b The State authorities care for patients at Natchez in the United States Marine Hospital without cost to the Department in consideration of the use of the hospital free of charge.

II.—Statement of Hospital-relief furnished during the fiscal Year, &c.—Continued.

States and ports.	Patients in hospital July 1, 1872.		Admitted during the year.		Discharged.	Died.	Remaining in hospi- tal June 30, 1873.	Relieved, not sent to hospital.	Aggregate number furnished relief.	Number days' relief in hospital.	Number days' office- relief.	Aggregate number days' relief fur- nished.	Total cost.	Daily per capita cost.	Tax collected.
TENNESSEE.															
Memphis	6	269	231	40	4	....	275	4,984	4,984	4,984	.....	\$5,275 50	\$1 06	\$1,637 99	
Nashville	1	52	36	5	12	....	53	2,811	2,811	2,811	.....	2,557 90	91	760 10	
Total	7	321	267	45	16	....	328	7,795	7,795	7,795	.....	7,833 40	.....	2,398 09	
KENTUCKY.															
Louisville	69	591	573	29	58	60	720	31,674	217	31,891	.....	28,132 12	88	1,548 53	
Paducah .....	.....	7	1	6	.....	.....	7	173	.....	173	.....	241 50	1 39	551 68	
Total	69	598	574	35	58	60	727	31,847	217	32,064	.....	28,373 62	.....	2,100 21	
OHIO.															
Cleveland	22	212	212	7	15	....	234	5,788	.....	5,788	.....	7,837 89	1 35	4,660 52	
Cincinnati	37	486	458	26	39	....	523	17,125	2	17,127	.....	9,941 58	58	6,266 50	
Sandusky .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	a5 10	.....	1,339 24	
Toledo .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	a3 00	.....	764 91	
Total	59	698	670	33	54	....	757	22,913	2	22,915	.....	17,787 57	.....	13,031 17	
INDIANA.															
Evansville	12	253	242	8	15	1	266	7,300	1	7,301	.....	4,921 97	67	2,296 00	
ILLINOIS.															
Alton .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3 55
Chicago	38	493	470	17	44	15	546	18,012	14	18,026	.....	25,259 99	1 40	7,928 66	
Cairo	29	420	402	34	13	.....	449	13,683	.....	13,683	.....	11,826 05	86	1,132 91	
Galena .....	.....	1	1	.....	.....	.....	1	10	.....	10	.....	11 00	1 10	709 98	
Quincy .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	94 40
Total	67	914	873	51	57	15	996	31,705	14	31,719	.....	37,097 04	.....	9,869 50	
MICHIGAN.															
Detroit	26	256	241	11	30	2	284	7,395	2	7,397	.....	9,201 69	1 24	6,356 49	
Grand Haven .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	a6 00	.....	1,945 09	
Marquette .....	.....	42	41	1	.....	.....	42	1,243	.....	1,243	.....	1,559 75	1 25	454 73	
Port Huron .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	a9 80	.....	2,847 41	
Total	26	298	282	12	30	2	326	8,638	2	8,640	.....	10,777 24	.....	11,603 72	
WISCONSIN.															
Milwaukee	11	135	133	2	11	.....	146	4,882	.....	4,882	.....	3,477 35	71	4,487 81	
MISSOURI.															
Saint Louis	40	509	469	32	48	.....	549	15,475	.....	15,475	.....	13,759 76	.....	11,173 84	
Saint Joseph .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	124 72	.....
Total	40	509	469	32	48	.....	549	15,475	.....	15,475	.....	13,759 76	.....	11,298 56	.....
IOWA.															
Burlington .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28 68
Dubuque	2	53	48	1	6	5	60	1,609	1	1,610	.....	1,558 42	98	253 60	.....
Total	2	53	48	1	6	5	60	1,609	1	1,610	.....	1,558 42	.....	282 28	.....
MINNESOTA.															
Saint Paul	4	25	21	3	5	....	29	897	.....	897	.....	879 40	97	1,247 75	.....
Duluth .....	.....	2	2	.....	.....	.....	2	29	.....	29	.....	35 20	1 21	57 60	.....
Total	4	27	23	3	5	....	31	926	.....	926	.....	914 60	.....	1,305 35	.....
NEBRASKA.															
Omaha .....	.....	1	1	.....	.....	.....	1	150	.....	150	.....	150 00	1 00	566 53	.....

a This charge is for medical examination and transportation of seamen.

II.—Statement of Hospital-relief furnished during the fiscal Year, &c.—Continued.

States and ports.	Patients in hospital July 1, 1872.	Admitted during the year.	Discharged.	Died.	Remaining in hospital June 30, 1873.	Relieved, not sent to hospital.	Aggregate number furnished relief.	Number days' relief in hospital.	Number days' office-relief.	Aggregate number days' relief furnished.	Total cost.	Daily per capita cost.	Tax collected.
CALIFORNIA.													
San Francisco	61	542	536	21	46	82	685	24,919	146	25,065	\$28,537 12	\$1 14	\$29,918 15
OREGON.													
Astoria	5	36	39	....	2	....	41	965	....	965	1,158 00	1 20	575 03
Portland													1,317 06
Total	5	36	39	....	2	....	41	965	....	965	1,158 00	....	1,892 09
WASH. TER.													
Port Townsend....	18	185	177	6	20	....	203	9,343	....	9,343	9,373 00	1 00	3,935 12
ALASKA TER.													
Sitka	1	1	2	....	....	....	2	77	....	77	128 33	1 67	284 39

RECAPITULATION.

States.	Total treated in hospital during the year.	Discharged.	Died.	Number days' relief in hospital.	Number days' office-relief.	Aggregate number days' relief furnished.	Total cost.	Tax collected.
Maine	378	336	14	12,683	66	12,749	\$13,808 81	\$18,668 64
New Hampshire	8	6	1	380	1	381	411 70	480 61
Vermont	6	5	....	233	....	233	147 25	342 22
Massachusetts	1,494	1,052	53	35,985	....	35,985	41,794 47	24,410 09
Rhode Island	179	160	6	5,052	....	5,052	5,710 72	4,549 24
Connecticut	82	77	2	2,660	7	2,667	2,474 15	8,438 74
New York	1,417	1,269	65	44,309	489	44,798	39,219 12	69,252 60
New Jersey	65	57	4	2,161	....	2,161	2,070 10	9,350 82
Pennsylvania	640	564	26	17,197	6	17,203	20,733 57	23,540 77
Delaware								1,918 77
Maryland	515	465	28	14,546	4	14,550	10,648 40	23,022 05
District of Columbia	94	87	5	4,060	....	4,060	2,942 50	2,008 69
Virginia	393	329	24	15,077	6	15,083	15,263 50	8,535 47
West Virginia	18	14	....	848	....	848	749 07	2,399 03
North Carolina	110	101	6	3,330	1	3,331	2,921 15	3,588 03
South Carolina	192	170	5	5,403	6	5,409	5,461 50	3,162 76
Georgia	258	232	12	9,506	....	9,506	9,630 00	3,276 85
Florida	407	371	20	11,790	84	11,874	17,028 20	6,495 00
Alabama	321	271	17	18,530	....	18,530	14,303 25	2,545 59
Mississippi	166	131	28	4,324	....	4,324	4,512 00	1,737 27
Louisiana	779	658	59	29,974	159	30,133	35,832 50	18,067 83
Texas	522	480	22	13,568	3	13,571	10,993 60	4,785 88
Tennessee	328	267	45	7,795	....	7,795	7,833 40	2,398 09
Kentucky	667	574	35	31,847	217	32,064	28,373 62	2,100 21
Ohio	757	670	33	22,913	2	22,915	17,787 57	13,031 17
Indiana	265	242	8	7,300	1	7,301	4,921 97	2,296 00
Illinois	981	873	51	31,705	14	31,719	37,097 04	9,869 50
Michigan	324	287	13	8,638	2	8,640	10,777 24	11,603 72
Wisconsin	146	135	2	4,822	....	4,822	3,477 35	4,487 81
Missouri	549	469	32	15,475	....	15,475	13,759 76	11,298 56
Iowa	55	48	1	1,609	1	1,610	1,558 42	298 28
Minnesota	31	23	3	926	....	926	914 60	1,305 35
Nebraska	1	1	....	150	....	150	150 00	566 53
California	603	536	21	24,919	146	25,065	28,537 12	29,918 15
Oregon	41	39	....	965	....	965	1,158 00	1,892 09
Washington Ter	203	177	6	9,343	....	9,343	9,373 00	3,935 12
Alaska Ter	2	2	....	77	....	77	128 33	284 39
Grand totals	12,697	11,171	646	420,160	1,215	421,375	422,502 98	335,845 95

III.—*Showing the Amounts of Hospital-money collected, the Appropriations made by Congress to supply Deficiencies, and the annual Expenditures on account of the Marine-Hospital Service from October 1, 1798, to June 30, 1873.*

[The act of May 3, 1803, (2 Stat., 192,) provides that all hospital-money collected shall be paid into the Treasury; and from June 30, 1802, when this provision went into effect, this statement is by warrants; prior to that date the statement is made from collectors' accounts.]

Year.	Collections.	Appropriations.	Available.	Expenditures.
1798 } 1801 } 1802 } 1803..... 1804..... 1805..... 1806..... 1807..... 1808..... 1809..... 1810..... 1811..... 1812..... 1813..... 1814..... 1815..... 1816..... 1817..... 1818..... 1819..... 1820..... 1821..... 1822..... 1823..... 1824..... 1825..... 1826..... 1827..... 1828..... 1829..... 1830..... 1831..... 1832..... 1833..... 1834..... 1835..... 1836..... 1837..... 1838..... 1839..... 1840..... 1841..... 1842..... 1843, (half year)..... 1844..... 1845..... 1846..... 1847..... 1848..... 1849..... 1850..... 1851..... 1852..... 1853..... 1854..... 1855..... 1856..... 1857.....	<i>a</i> \$141,690 25 47,635 09 33,766 47 54,933 21 58,210 98 57,923 20 66,820 01 61,474 47 36,515 44 774,192 42 53,715 20 54,586 34 42,421 46 21,789 58 10,191 97 28,374 74 43,864 21 48,081 88 46,911 27 50,405 84 48,765 01 48,569 99 51,923 72 53,062 91 51,877 52 56,992 39 58,133 10 58,233 67 56,217 27 58,361 34 57,447 13 59,182 17 58,942 56 62,901 15 64,532 98 66,621 77 67,961 02 27,021 24 35,234 52 66,311 83 71,675 91 72,760 20 72,429 36 37,417 18 85,864 42 88,074 34 90,675 68 95,216 73 97,989 26 103,496 38 106,437 49 133,447 07 134,293 26 133,718 08 146,576 31 148,733 43 155,068 14 167,325 29	..... ..... ..... ..... \$1,000 00 20,000 00 20,000 00 20,000 00 81,319 34 50,000 00 30,000 00 \$12,875 00 15,750 00 25,000 00 15,000 00 175,009 00 97,000 00 46,500 00 58,500 00 25,000 00 25,000 00 25,000 00 12,000 00 12,000 00 15,000 00 200,000 00 200,000 00 100,000 00 200,000 00 150,000 00 250,000 00	\$141,699 25 47,635 09 33,766 47 54,933 21 59,210 98 57,923 20 66,820 01 61,474 47 36,515 44 74,192 42 53,715 20 54,586 34 42,421 46 41,789 58 30,191 97 48,374 74 43,864 21 48,081 88 46,911 27 50,405 84 130,084 35 98,569 99 81,923 72 53,062 91 64,732 52 56,992 39 58,133 10 58,233 67 56,217 27 58,361 34 57,447 13 59,182 17 58,942 56 78,651 15 64,532 98 91,621 77 82,961 02 202,021 24 35,234 52 66,311 83 71,675 91 169,760 20 118,929 36 95,917 18 110,864 42 113,074 34 90,675 68 120,216 73 109,989 26 115,496 38 121,437 49 333,447 07 334,393 26 233,718 08 146,576 31 348,733 43 305,068 14 417,325 29	<i>b</i> \$74,636 51 38,500 74 250 00 31,087 36 <i>d</i> \$4,027 50 59,828 41 <i>f</i> 53,231 98 65,571 51 60,383 16 70,901 75 36,793 60 57,109 08 <i>h</i> 57,723 11 53,376 87 45,226 50 43,651 55 48,555 68 <i>j</i> 81,749 28 87,230 62 84,097 61 87,217 39 66,845 43 44,324 61 44,761 13 47,861 77 154,938 51 51,236 98 <i>m</i> 89,137 42 69,259 61 63,562 23 68,996 96 65,563 98 76,877 87 68,948 73 74,668 96 86,268 43 89,370 70 97,935 75 109,229 59 121,653 31 130,561 07 109,758 82 100,112 57 49,430 86 62,148 67 168,016 20 68,678 70 123,257 42 140,995 50 103,167 65 162,379 67 139,220 43 203,115 23 280,750 10 292,825 69 345,987 46 368,520 86 354,053 90

a Includes \$15,635.33 hospital-money received from the Navy Department.

b Includes \$6,185.33 for purchase of Norfolk hospital.

c Includes \$2,500 hospital-money received from the Navy Department.

d Includes \$14,842.34, cost of Charlestown hospital, at the port of Boston.

e Includes \$157.66 carried to surplus fund.

f Includes \$379.66 carried to surplus fund.

g Includes \$38,513.96 hospital-fund received from Navy Department.

h Includes 1 cent carried to surplus fund.

i Includes \$6,500 expended for repairs of Norfolk hospital.

j Includes \$5,500, cost of site of Charleston (S. C.) hospital.

k Received from sale of hospital at Charlestown, Mass.

l Includes \$4,068, cost of site, &c., for marine hospital at Chelsea, Mass.

m Includes \$27,603.39, cost of Chelsea hospital.

C.—*Showing the Amounts of Hospital-money collected, &c.*—Continued.

Year.	Collections.	Appropriations.	Available.	Expenditures.
1858.....	\$164,161 82	\$150,000 00	\$314,161 82	\$379,214 86
1859.....	178,195 59	150,000 00	328,195 59	349,890 36
1860.....	173,073 09	275,000 00	448,073 09	455,593 10
1861.....	155,172 43	175,000 00	330,172 43	308,918 13
1862.....	128,526 97	200,000 00	328,526 97	290,447 41
1863.....	118,307 74	200,000 00	318,307 74	198,933 60
1864.....	117,824 05	100,000 00	217,824 05	260,911 84
1865.....	128,656 30	150,000 00	278,656 30	348,472 82
1866.....	142,292 81	170,000 00	312,292 81	<i>n</i> 335,958 39
1867.....	231,596 91	200,000 00	431,596 91	<i>n</i> 415,580 53
1868.....	154,530 35	250,000 00	434,530 35	<i>n</i> 443,646 53
1869.....	176,957 95	200,000 00	376,957 95	<i>n</i> 391,296 89
1870.....	168,153 70	200,000 00	368,153 70	<i>n</i> 353,277 54
1871.....	293,592 14	250,000 00	543,592 14	<i>n</i> 437,493 86
1872.....	319,823 16	154,050 00	473,873 16	421,897 03
1873.....	333,003 03	125,000 00	458,003 03	398,778 69
Total	7,096,968 89	4,830,994 34	11,927,963 23	11,639,934 66

Amount carried to surplus fund	537 33
Balance remaining to credit of available fund of 1871.....	131,926 59
Balance remaining to credit of available fund of 1872.....	80,778 32
Balance remaining to credit of available fund of 1873.....	74,786 33

Total	11,927,963 23
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n The expenditures from 1866 to 1871, as represented in this statement, are less than the actual expenditures for those years by \$91,250.11, in consequence of various sums, aggregating that amount, received on account of sales of marine hospitals, having been erroneously credited as repayments.

o Includes \$4,050, being a part of the proceeds from the sale of the marine hospital at Vicksburg, Miss., sold by authority of the act of April 29, 1866.

A comparison of the collections and expenditures for 1873, as shown in the above table, (III,) with the statement of collections of hospital-dues, and expenditures of the fund as given in the summary statement, I, discovers an excess in the latter as follows, viz: Collections, \$2,842.92; expenditures, \$23,724.29. This discrepancy is explained by the facts that table III shows only the amount of collections covered into the Treasury at the time of closing the accounts of the fiscal year, together with the net amount paid out on warrants between July 1, 1872, and June 30, 1873, (from which are deducted the repayments made during the fiscal year 1873, some of which were applicable to the years 1871 and 1872,) while statement I shows the actual collections of hospital-dues within the year by customs-officers, a few of which at some of the remote ports had not been covered into the Treasury at the close of the year; it also shows the actual cost of the Service between those dates, July 1, 1872, and June 30, 1873, including the paid and unpaid bills.

IV.—Statement showing the Location of Marine Hospitals; Date of purchase of Site or commencement of Construction; Date when first occupied; Amount expended during past Year in Construction or Repairs; total Cost to June 30, 1873; present Condition or final Disposition of the Buildings; and Amounts received from the Sales of those disposed of.

Location.	Purchased or commenced.	Occupied.	Amount expended in 1873.	Cost to date.	Condition or disposition.	Proceeds of sales.
Norfolk, Va.	1800	.....	.....	\$22,395 10	Sold, 1869.....	\$15,613 80
Newport, R. I. ....	.....	.....	.....	.....	(a) Sold, 1824.....	12,875 00
Boston.....	1802 1825	1804 1827	.....	14,842 34 32,168 06	Sold, 1867.....	54,803 38
	{ 3.....	{ about 1860 }	\$595 43	394,047 91	In use.....	.....
Charleston, S. C.	{ 1815 1832	{ 1834 1849	.....	26,685 77	Sold, 1866.....	9,500 00
New Orleans. { 1.....	1837	.....	.....	122,772 70	Sold, 1866 (b).....	.....
	2.....	.....	.....	530,090 84	Unfinished (c).....	.....
Mobile, Ala.	d1838	1843	799 71	55,339 71	Leased for seamen.....	.....
Pittsburg, Pa.	1842	1851	109 46	72,554 57	In use.....	e20,550 96
Louisville, Ky.	f1843	1852	.....	98,452 47	Leased for seamen.....	.....
Cleveland, Ohio.....	f1844	1852	319 25	119,291 84	In use.....	.....
Natchez, Miss.	f1845	1852	.....	66,750 00	(g).....	.....
Key West, Fla.	1844	1845	.....	34,174 84	In use.....	.....
Ocracoke, N. C.	1843	1847	.....	9,227 07	Abandoned (h).....	.....
Paducah, Ky.	1842	1852	.....	58,525 77	Burned, 1868.....	i6,571 34
Napoleon, Ark.	f1842	1855	.....	62,290 83	Destroyed, 1868(j).....	30 00
Chicago.....	k1849	1852	.....	64,070 98	Sold, 1864.....	132,000 00
	2.....	1867	61,432 94	422,107 03	In use.....	.....
Saint Louis, Mo.	l1850	1858	121 60	109,302 12	In use.....	.....
San Francisco, Cal.	m1851	1854	.....	231,871 10	In ruins.....	.....
Evansville, Ind.	1853?	1856	.....	59,899 02	Sold, 1867.....	10,507 11
Portland, Mo.	1852	1859	234 25	122,825 13	In use.....	.....
Vicksburg, Miss.	1853	1856	.....	67,775 16	Sold, 1870.....	20,257 52
Pensacola, Fla.	(n)	.....	.....	1,052 96	.....	.....
Detroit, Mich.	1855	1857	57 35	108,987 98	In use.....	.....
Cincinnati, Ohio.....	1856	(o)	.....	182,665 48	Sold, 1866.....	70,500 00
Burlington, Iowa.....	1856	1858	.....	29,996 84	Sold, 1867.....	6,000 00
Saint Mark's, Fla. ....	.....	1859	.....	25,758 00	Transferred, 1867(p).....	.....
Burlington, Vt.	1855	(o)	.....	39,572 30	Sold, 1866.....	7,164 41
Wilmington, N. C.	1857	(o)	.....	43,897 44	Sold, 1870.....	4,020 00
Galena, Ill.	q1857	1861	.....	48,797 58	Sold, 1868.....	r6,321 08
Port Angeles, Wash. Ter.	(s)	.....	.....	.....	Sold, 1868.....	165 00
Total.....	.....	.....	63,669 99	3,278,188 94	.....	376,879 60

a Reported by the Secretary of the Treasury, February 16, 1802, to have been discontinued. No other record found.

b Reported as sold in 1866 for \$300, but the amount does not appear to have been received.

c Completion of the hospital building impracticable.

d First site selected in 1837. Abandoned on account of defective title.

e From sale of a portion of hospital grounds in 1870.

f Sites selected by the medical board of the Army in 1837.

g Building injured by a hurricane in 1873, so as to be unfit for use; not required for a marine hospital.

h Unoccupied and not required.

i From sale of land.

j Building and grounds washed away by the river.

k Site ceded by War Department. Hospital burned, October 10, 1871, before the property was delivered.

l Site ceded by War Department.

m Site set apart from Government land. Hospital injured by an earthquake in 1868, and abandoned.

n Work not commenced. Expenditures made from 1835 to 1858.

o Never occupied as a marine hospital.

p Transferred to the War Department.

q Includes the sum of \$1,011.08 for furniture.

r Note of \$1,000 outstanding.

s No record of the establishment of a marine hospital at Port Angeles, Wash. Ter., has been found.

(V.)—DISEASE AND INJURY,
AND
(VI.)—MORTALITY TABLES.

TABLE V.—*Classified Table of Diseases and Injuries of Patients of the United States*

STATES.	GENERAL DISEASES—																	
	Variola.	Variola modificata.	Morbilli.	Febris rubra.	Febris typhus.	Febris cerebro-spinalis.	Febris enterica.	Febris flava.	Febricula.	Febris intermittens quotidiana.	Febris intermittens tertiana.	Febris intermittens quartana.	Febris intermittens biliosa.	Febris remittens.	Febris remittens pernicios.	Febris remittens biliosa.	Febris typho-malarialis.	Febris congestiva.
Maine	20		1	1	2		28			12	25		7	9		11		1
New Hampshire							2											
Vermont											2							
Massachusetts	29		2			1	49			6	181			10		16	1	2
Rhode Island			1				3				11			1	1	1	1	
Connecticut							9				9			2				
New York	5	1	3				15		1		104	51		83			2	
New Jersey	2		2				4				2			1		11		
Pennsylvania	2		4			3	8			2	74			4			11	
Maryland	30				1	1	5		2		50			8				
District of Columbia	3										16			7				
Virginia	13	1	7				1			31	73			2			1	1
West Virginia			1				4				5							
North Carolina							10				20		6					
South Carolina							1			4	20			7				
Georgia		1					1				34			1		58		2
Florida	3		1		1		6	1			82			23	5	3		
Alabama											112			4			1	6
Mississippi	25					2	1				23			2		4		1
Louisiana	29						1			102	2	1		97				7
Texas										55	61			43				3
Tennessee	32	3	2		1	2	4				20			24				1
Kentucky	9	1					12				40			32			33	
Ohio	8		6			1	2				78			16		2	1	
Indiana			1							10	57			5			1	
Illinois	40		4			5	6				106			82				
Michigan	3						5				30		1	13		23		
Wisconsin	2						4			8	22			9				
Missouri	24					2	5				45			41				
Iowa							1				22			3			1	
Minnesota	1						1				5					1		
Nebraska																		
California					1						31			1				
Oregon											4							
Washington Ter.										2								
Alaska Ter.																		
Totals	286	7	35	1	6	17	188	1	3	232	1,369	52	14	530	6	130	53	25

Marine-Hospital Service, admitted during the fiscal Year ended June 30, 1873.

(*Morbi corporis universi.*)

Cholera simplex.	Cholera pestifera.	Diphtheria.	Parotides.	Catarrhus epidemicus.	Phagedæna putris.	Erysipelas.	Rheumatismus acutus.	Lumbago.	Rheumatismus longus.	Rheumatismus syphiliticus.	Podagra.	Syphilis primigenia.	Ulcus venereum molle.	Adenitis.	Inguen.	Inguen syphiliticum.	Syphilis secundaria.	Carcinoma.	Carcinoma epitheliosum.	Tumores malignantes et non malignantes.	Papillomata.	Cystoma.	Enchondroma.	Lupus exedens.	Struma.	Phthisis pulmonalis.
2	1	1	2	5	1	11	23		13			14					19			1					2	3
1						37			30			60	12				113	1								
						10						17					2									
						12						53	1				70									
						58			70		5	106	1			3	2									
						2			1			41		1			2									
						29		2	26			53		1			89									
						7			27			11		1		1	46	1	1	3						
						6			45			17					29									
						12						21														
						2			22			17					18									
						15			9			21					12									
						32			3			15		2		5	23									
						11			16		2	12	4			1	16	1	1							
						11			5			4					3									
						51			6			35					39									
						11			1			21					16									
						25			52			39					70									
						10			48			72					79									
						1			1			6					32									
						14			26			111					18									
						56			7			26					12									
						2			8			75					62									
						17						1														
						1						4														
						14			34			40					116									
						8			30			1					4									
						4						16					5									
14	14	24	13	17	2	96	529	19	493	10	11	892	17	10	29	2	895	2	2	13	1	1	1	1	33	232

TABLE V.—*Classified Table of Diseases and Injuries of Patients of*

STATES.	GENERAL DISEASES— (<i>Morbi corporis universi.</i>)					DISEASES OF THE NERVOUS SYSTEM—(<i>Morbi nervorum</i>)												
	Hæmoptysis.	Diabetes.	Scorbutus.	Anæmia.	Anasarca.	Cephalalgia.	Meningitis.	Inflammatio cerebri.	Concussio cerebri.	Apoplexia.	Solis ictus.	Paralysis.	Hemiplegia.	Epilepsia.	Paralysis agitans.	Chorea.	Neuralgia.	Sciatica.
Maine	1		1		1							5		1			5	1
New Hampshire																		
Vermont																		
Massachusetts	1		10	9			1		1		1	5	1				8	3
Rhode Island											2			1				
Connecticut			1	6	12			2			3	13		1			12	1
New York												3						
New Jersey												3						1
Pennsylvania	2		3						1		1	2	1				9	
Maryland				2		2						1		2			2	
District of Columbia	1			1								1						
Virginia				2			1			1	1			3				
West Virginia																		
North Carolina											1							
South Carolina				1					1	1		1					1	
Georgia				1				1				1	1				1	
Florida				11			1		1			2					4	
Alabama				1		3					1			1			5	2
Mississippi											1	1					1	
Louisiana								1			1	2		2			2	
Texas				14		2	1	3			1	4					39	
Tennessee							3							1				
Kentucky												2					5	
Ohio				4			2				1	4		1			2	
Indiana				1			1											
Illinois	1			5								4		1		1	7	3
Michigan				6					1									
Wisconsin									1								1	1
Missouri				2			1	2			1	1		2			1	2
Iowa																		
Minnesota																		
Nebraska																		
California		1	27					2				2		1	1		15	
Oregon																	1	
Washington Ter.												2					7	
Alaska Ter																		
Total	6	2	47	72	1	7	11	11	6	2	14	58	3	17	1	1	128	14

the United States Marine-Hospital Service, &c.—Continued.

apparatus.)					DISEASES OF THE ORGANS OF THE SPECIAL SENSES— (Morbis sensuum singularum apparatus.)															DISEASES OF THE CIRCULATORY SYSTEM—(Morbis sanguinis apparatus.)														
Pleurodynia.	Alcoholismus chronicus.	Delirium alcoholicum.	Dementia.	Insanitas.	Inflammatio conjunctivæ.	Ophthalmia gonorrhoeicus.	Chenosis.	Uva.	Iritis.	Iritis syphiliticum.	Choroiditis.	Amaurosis.	Sulfusio.	Hydrophthalmia.	Hemeralopia.	Nyctalopia.	Otorrhea.	Otitis.	Surditas.	Epistaxis.	Morbis cordis.	Pericarditis.	Hydrops pericardii.	Endocarditis.	Hypertrophia cordis.	Carditis.	Morbis valvulorum cordis.	Angina pectoris.	Aneurysma.	Varices.				
...	1	3	1	2	7	...	...	...	1	...	...	...	...	...	1	...	...	1	1	...	...	...	1	...	1	3	...	5	...	2	3
1	5	4	...	1	1	...	1	...	1	...	1	...	...	1	...	...	...	...	...	...	3	...	...	...	...	...	...	7	...	2	...
...	3	1	...	...	2	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...
...	1	...	...	...	3	1	...	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...
...	1	1	2	...	3	...	...	1	...	1	...	1	...	...	...	...	...	...	...	2	1	...	1	...	...	1	...	1	...	...	...
...	1	3	1	...	6	...	1	...	1	...	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	3	...
...	2	4	1	...	1	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
...	6	3	6	1	...	2	1	...		
...	2	2	4	1	1	1	...	1	1		
...	2	1	1		
1	...	1	4	...	6	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	1	...	1	...	...	...	...	...	1	...	...	
...	2	1	1	...	3	1	1		
...	1	1	1		
...	5	1	...	4		
...		
4	31	27	1	4	67	4	1	1	16	2	4	2	3	1	1	3	3	3	3	3	5	3	2	1	4	4	19	1	7	9	...			

TABLE V.—*Classified Table of Diseases and Injuries of Patients of*

STATES.	DISEASES OF THE RESPIRATORY ORGANS— (<i>Morbi spiritus organorum.</i>)										DISEASES OF THE DIGESTIVE SYSTEM—												
	Catarrhus.	Tonsillitis.	Laryngitis.	Bronchitis acuta.	Bronchitis longa.	Asthma.	Pneumonia.	Empysema.	Abscessus pulmonis.	Pleuritis.	Hydrothorax.	Stomatitis.	Gastritis.	Dyspepsia.	Gastro-enteritis.	Enteritis.	Duodenitis.	Perityphlitis.	Melæna.	Ascaris lumbricoïdes.	Tænia solium.	Hernia inguinalis.	Hernia strangulata.
Maine	1	3		19	7	1	19			1			1	9		1						1	
New Hampshire							1																
Vermont																							
Massachusetts		7	1	19	6	1	26			9			3	15	1		1					3	
Rhode Island		2		3			2			1				2				1					
Connecticut		1					5																
New York		5	4	37	3	2	15	1	7	1			8	3		1				1	2		
New Jersey				1			4																
Pennsylvania		6		33	4	1	11			8				12								2	
Maryland		1	1	12	6		11			10				3									
District of Columbia							4	1		2			1			7							
Virginia		1		20	1		10						2	1									1
West Virginia							1																
North Carolina	4	2		1			1			1			1										
South Carolina	7			3	4	1	1			1						2						1	
Georgia	1	1		3			5						2		1	1							
Florida		1		6	2	2	6			6			2	3								1	
Alabama	1				12		2			2													
Mississippi				1			12																
Louisiana	1	3		31		6	10			3			1	3									
Texas	11			1	1	1	9						1	8							1	3	
Tennessee		2					22			2			2	3								3	
Kentucky		3		12	18		14			3				5									
Ohio	1		2	18	10		11			13				8		2			1				
Indiana	4	1		9			11			3				1									
Illinois	4		6	21	22	1	26			2			6	2							1	1	
Michigan	1			2	3	2	18						1									1	
Wisconsin				5		1	2			1													
Missouri	1	2		12	1	1	6			6					2								
Iowa																							
Minnesota				1						1													
Nebraska																							
California			1	12	8		3			3	1	2	1							1	1	1	1
Oregon										1												1	
Washington Ter.		2			8		3			9			1	1								1	
Alaska Ter.																							
Total	37	44	15	264	116	20	280	1	1	97	1	1	35	82	2	14	1	1	1	2	5	19	2

TABLE V.—Classified Table of Diseases and Injuries of Patients of

STATES.	DISEASES OF THE URINARY ORGANS—(<i>Morbi urinae apparatus.</i>)										DISEASES OF THE BONES AND JOINTS— (<i>Morbi ossium et articulorum.</i>)										DISEASES OF				
	Paraphimosis.	Urethritis.	Stricture urethrae.	Fistula urethrae.	Disruptio urethrae.	Hydrocele.	Hæmatocele.	Cirrhoele.	Orchitis.	Epididymitis.	Sarcocoele.	Spermatorrhœa.	Periostitis.	Caries.	Necrosis.	Osteum morbus.	Anchylosis.	Hydrops articulorum.	Synovitis.	Cellulitis.	Abscessus.	Morbus cutis.	Erythema.	Urticaria.	Prurigo.
Maine			3							1								1			6	1			
New Hampshire																									
Vermont																									
Massachusetts			40			3			13	1		1			1		1		2		31		1	1	
Rhode Island									4										2						
Connecticut			2						4										2						
New York			15	1		3			11	14			1	2		6		1	2		57	2	1	1	
New Jersey																					3				
Pennsylvania	1		5	1	1	1		1	8	1					2		1	1	1	1	10				
Maryland	3		4			1	1				5				1				2	2	25				
District of Columbia									3							1			1		3				
Virginia			3			1			7												8				
West Virginia																									
North Carolina									1	1															
South Carolina			1			1			3	2									1	1	1				
Georgia			2						1												5				1
Florida			5			1			1				2								5				
Alabama			4		1				2					1							2				
Mississippi									1			1	2		3						2				
Louisiana			2						5												2				
Texas			3						4					2	1		2		2		10	1			
Tennessee						1			3								1				4				
Kentucky			1						2										2						
Ohio			11	3		1			10	1									1		16				
Indiana									4	3				2	1				1	1	10			1	
Illinois			6			1																			
Michigan									12												7				
Wisconsin									7	5									1		4				
Missouri				1					3	3									2		1				
Iowa									5	2					1						5		1		
Minnesota																									
Nebraska									1	1															
California	1		12			1			24			5			2						6	15			
Oregon			1						3			1													
Washington Ter			4						8												24		1		
Alaska Ter																									
Total	4	1	124	6	2	16	1	2	112	66	6	3	10	7	18	1	5	2	20	3	243	25	2		1

the United States Marine-Hospital Service, &c.—Continued.

THE SKIN—(Morbi cutis apparatus.)

NOT CLASSIFIED—(Injurie singulares.)

Porriço.	Psoriasis.	Herpes zoster.	Herpes præputii.	Eczema.	Rupia.	Scabies.	Perio.	Ambusta ex frigore.	Ulcus.	Furunculus.	Carbunculus.	Paronychia.	Elephantiasis.	Vena hydrargyri.	Vena cantharid.	Injuria.	Ambusta.	Contusum.	Concussio.	Strenua.	Luxatio.	Fractura simplex.	Fractura foras patens.	Vena infecta.	Vulnus sclopetica.	Vulnus incis.	Vulnus lacerata.	Vulnus punctata.	Humani morsus.	Ferri morsus.	Maligneria.	Amputatio.	Pregnatio.	Totals.
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
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1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
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1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
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1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
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1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
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1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1	7	137	302	43	12	90	1	1	1	79	66	635	9	89	40	204	34	2	35	70	90	18	1	1	9	5	1	11,832
1	7	5	1	9	2	1																												

United States Marine-Hospital Service during the fiscal Year ended June 30, 1873.

MORBI CORPORIS UNIVERSI.										MORBI NERVORUM APPARATUS.										MORBI SANGUINIS APPARATUS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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TABLE VI.—*Supplementary Table showing Causes of Mortality among Patients*

STATES.	MORBI SPIRITUS ORGANORUM.							MORBI CONVECTIONIS APPARATUS.														
	Laryngitis.	Bronchitis acuta.	Bronchitis longa.	Pneumonia.	Abscessus pulmonis.	Pleuritis.	Hydrothorax.	Gastritis.	Carcinoma ventriculi.	Dyspepsia.	Dysenteria acuta.	Dysenteria longa.	Hernia strangulata.	Diarrhea acuta.	Diarrhea longa.	Hepatitis.	Hepatitis longa.	Abscessus hepatis.	Cirrhosis hepatis.	Icterus.	Peritonitis.	Ascites.
Maine.....			1	2																		
New Hampshire.....				1																		
Massachusetts.....				5					1			1										
Rhode Island.....																						
Connecticut.....				1																		
New York.....	1			5				1			1					1	1					
New Jersey.....																						
Pennsylvania.....		1		3																		
Maryland.....				2		3														1		
District of Columbia.....				1							1			1						1	2	
Virginia.....		1		3																		
North Carolina.....				1							1											
South Carolina.....																						
Georgia.....				2																		
Florida.....				2							1											
Alabama.....				1					2												1	
Mississippi.....				2								1										
Louisiana.....		3		2		2				1	4	1		2		4		2				1
Texas.....				3		1				1	1	1		1		1						
Tennessee.....				2																2		
Kentucky.....		1	1	1						1	1				2	1						
Ohio.....			1	1						1					2							
Indiana.....							1				1				2							
Illinois.....	2		2	4		1		1			1			1								
Michigan.....		1	1	3								3										1
Wisconsin.....																				1		
Missouri.....		1																				
Iowa.....													5	1				1	1			
Minnesota.....																						
California.....					1									1				1	1			1
Washington Ter.....			1																			
Total.....	3	8	7	47	1	7	1	2	3	3	15	9	1	9	12	2	4	2	2	1	6	5

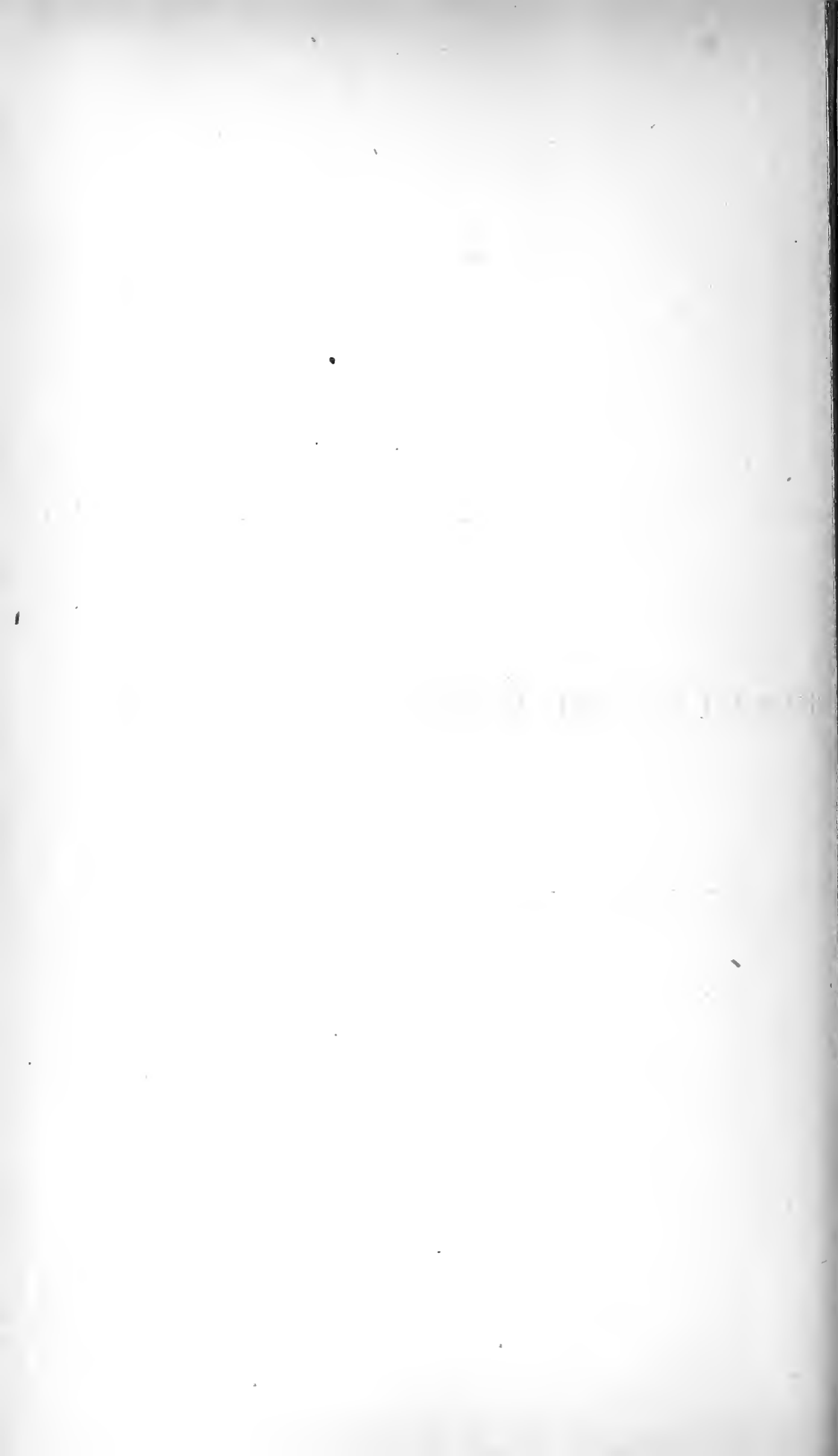
of the United States Marine-Hospital Service, &c.—Continued.

MORBI URINÆ APPARATUS.										INJURIÆ SINGULARES.												
Morbus Brighti.	Lithia renalis arenosa.	Nephritis.	Cystitis.	Hæmaturia vesicæ.	Prostatitis et cystitis.	Diruptio urethræ.	Ulcus.	Abscessus.	Coxarum morbus.	Synovitis.	Necrosis.	Contusum.	Injuria.	Injuria interna.	Ambusta.	Contusio spinalis.	Fractura calvarie.	Fractura foras patens.	Vulnus incisa.	Vulnus lacerata.	Vulnus sclopetica.	Totals.
3					1		1					1									1	14
6							1				1							1	1			53
2		1				1			1													6
																						2
																						65
																						4
																						26
								1														28
																						5
									1									1				24
																				1		6
1																						5
1																						12
																						20
																						17
1							1						1			1		1				28
								1														59
	1							1					1					1				22
													1									45
				1									1									35
															1		1					33
1							1							1						1		8
										1						1						51
																				1		12
																						2
																						32
												1										1
																						3
																	2					21
																						6
15	1	1	1	1	1	1	4	4	1	1	1	2	3	1	1	2	3	4	1	2	4	646

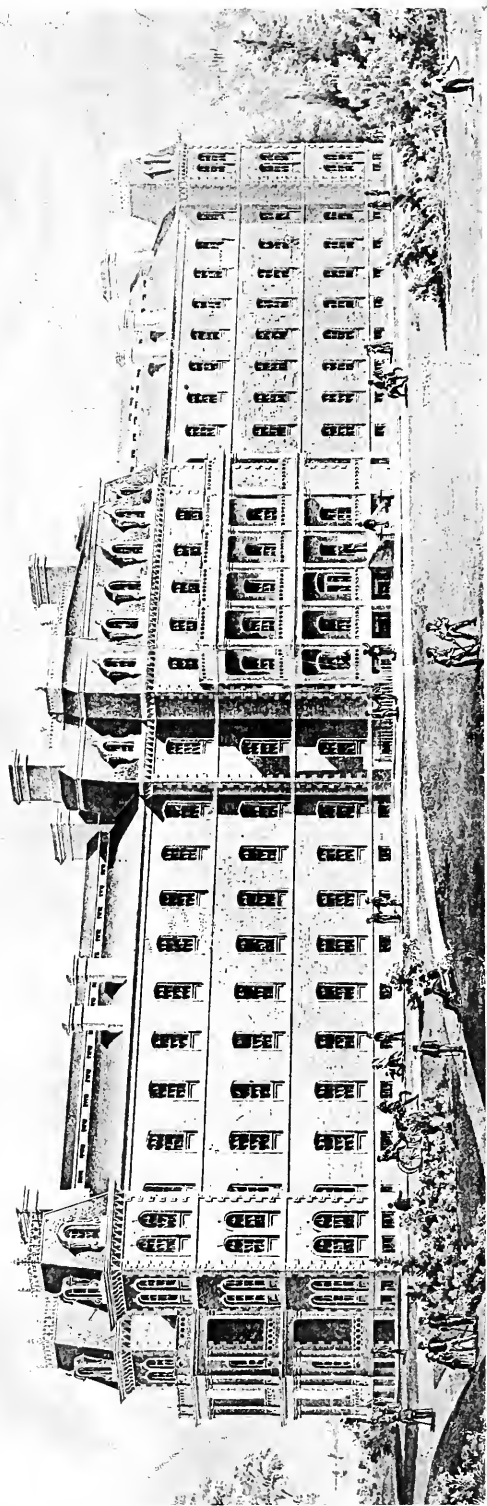


APPENDIX.

- A.—HOSPITALS AND HOSPITAL CONSTRUCTION.
 - B.—NATURAL HISTORY OF YELLOW FEVER IN THE UNITED STATES.
 - C.—THE YELLOW-FEVER EPIDEMIC OF 1873.
 - D.—REPORT OF A CASE OF DOUBLE DIAPHRAGMATIC RUPTURE AND HERNIA.
 - E. URETHRAL STRICTURES.
 - F.—THE SAILOR AND THE SERVICE AT THE PORT OF NEW YORK.
 - G.—RIVER-BOATMEN OF THE LOWER MISSISSIPPI.
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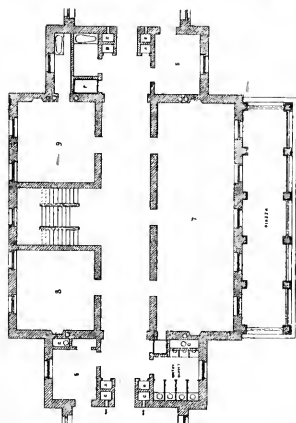
HOSPITALS AND HOSPITAL CONSTRUCTION.



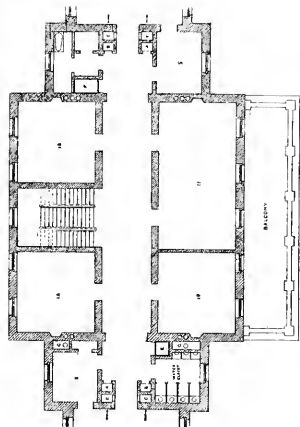
U. S. MARINE HOSPITAL,

CHICAGO, ILL.

Plate II.



- 1 PATIENTS ROOM
- 2 STAIRS
- 3 STAIRS
- 4 STAIRS
- 5 STAIRS
- 6 STAIRS
- 7 STAIRS
- 8 STAIRS
- 9 STAIRS
- 10 STAIRS
- 11 STAIRS
- 12 STAIRS
- 13 STAIRS
- 14 STAIRS
- 15 STAIRS

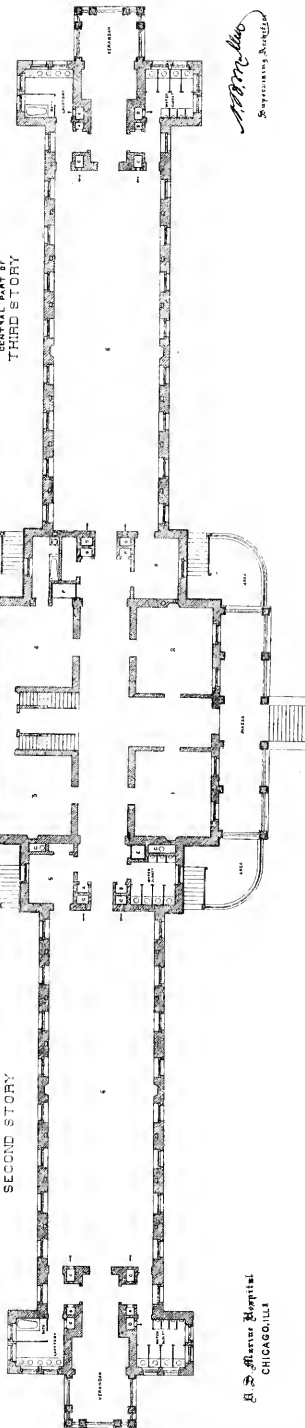


- 1 PATIENTS ROOM
- 2 STAIRS
- 3 STAIRS
- 4 STAIRS
- 5 STAIRS
- 6 STAIRS
- 7 STAIRS
- 8 STAIRS
- 9 STAIRS
- 10 STAIRS
- 11 STAIRS
- 12 STAIRS
- 13 STAIRS
- 14 STAIRS
- 15 STAIRS

FIRST STORY

CENTRAL PART OF
SECOND STORY

CENTRAL PART OF
THIRD STORY



St. Mary's Hospital
CHICAGO, ILL.

Wm. H. H.
Superintendent Building



HOSPITALS AND HOSPITAL CONSTRUCTION.

By JOHN M. WOODWORTH, M. D.,
Supervising Surgeon United States Marine-Hospital Service.

THOUGH the following is but an outline of the subject of the above title, sketched amid the pressure of official duties and the details of a Service extending from the Atlantic to the Pacific, and from the Great Lakes to the Gulf, it is offered in the belief that the adoption of the pavilion-hospital plan, alluded to in the pages of the preceding report*—and which marks the inauguration of a new era in hospital construction, at least so far as the Marine-Hospital Service is concerned—renders necessary an explanation of the details of the plan adopted, and, incidentally, some consideration of the principles which, it is conceived, should govern hospitals, their design, location, material, general arrangement, duration of use, etc.

Hospitals are established primarily to facilitate the recovery of the sick and disabled. But while this is the first and fundamental principle, to the enforcement of which all others should be subservient, the essential reason for the existence of a hospital, as such, is the aggregation of patients under such conditions as that a relatively small number of medical attendants and nurses may suffice for their treatment and care.

With this aggregation of patients, however, come certain evils, which if not met and counteracted in the mode of construction and in the general administration of the hospital, frustrate the primary object, and even become the cause of other and graver disease, and of a consequently increased percentage of mortality.

What these evils are will be described more fully in the context; but it may be here remarked that it so happens that the most economical mode of hospital construction is really the safest for the sick. When this fact comes to be as clearly recognized by the profession generally, as it is now by a few close observers of hospital practice, the old magnificent hospitals, built as "monuments for all time," will be abandoned for the simple pavilion, of indefinite existence; and the only strictly permanent parts of the modern hospital, constructed on wise sanitary principles, will be the executive building, kitchen, laundry, and engine-house. For although we are accustomed to regard the hospital as an asylum designed for the benefit of the sick, yet it not unfrequently occurs that patients enter great general hospitals with simple diseases or trivial injuries, and contract therein other maladies of a more serious charac-

* Report of the Supervising Surgeon U. S. Marine-Hospital Service, 1873.

ter, of which, indeed, they often die. What is true of the large general hospitals referred to, is unfortunately true of every marine hospital now in use, the new Chicago Marine Hospital* alone excepted.

EVILS OF BADLY CONSTRUCTED HOSPITALS.

The causes which render a badly constructed hospital unhealthful are due to those natural influences which are continually at work in the body, suffering from disease, to restore it to the normal condition of health. The lungs and skin are two great channels through which constantly escape from the system, even in health, the most deleterious or poisonous elements. In disease these emanations become more actively, and even specifically, poisonous; hence a number of patients congregated in a common ward generate a miasm which accumulates, if not rapidly removed by adequate ventilation, until every part of the room is pervaded, and after a longer or shorter period, depending upon the persistency and degree of cumulation, the floor, walls, furniture, and bedding of the ward become saturated with a miasm which is capable of poisoning a large percentage of those who are exposed to its influence.

The phases of hospital disease produced by hospital miasm vary under different conditions of the victims exposed to it. Thus one is attacked with erysipelas; another with pyæmia, or with gangrene, or with puerperal fever, etc. While wounded or suppurating surfaces appear to furnish the conditions most favorable to the reception and activity of the poison, it cannot be doubted that most diseases are aggravated by its influence, although the patients may not show the characteristic evidences of it.

The record of pyæmia and erysipelas in Bellevue Hospital, of New York, strongly exemplifies the influence of an old building on hospital patients. The results of an examination into the relative prevalence of these diseases in that hospital during the year 1871, as compared with former years, furnish the following tables, as given in *The Medical Record* of September 1, 1872:

Table No. 1 shows the absolute frequency (as nearly as is attainable)

* Of the massive and imposing architecture of this hospital the accompanying heliograph gives but an imperfect idea. Like all of the work of Mr. MULLETT, it is thoroughly honest and complete, and it is certainly no reflection upon his professional ability to say that the chief blemish of the Chicago hospital, in the eye of the modern hospital-surgeon, is the architectural merit in its promise of solid endurance and permanence. But while thus showing his pre-eminent ability in dealing with the old standards, Mr. MULLETT has been equally prompt to recognize and respond to the requirements of the new; and the writer desires here to acknowledge his indebtedness for the ready and intelligent interest with which his suggestions in regard to wooden pavilion-hospitals have been met by the Supervising Architect. The presentation of the perspective view and of the block plan of the Chicago marine hospital in connection with the plans of the San Francisco pavilion-hospital will serve to show how widely the old and the new differ, and how thoroughly the architectural treatment of both has been mastered.

of erysipelas and pyæmia from 1861 to 1871, inclusive, and their relative frequency in the several years, as compared with one another in the same year.

TABLE No. 1.

Years.	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	Total.
Erysipelas	61	51	109	100	88	87	30	52	97	76	100	852
Pyæmia.....	20		10	11	10	5	14	33	14	37	39	193

Table No. 2 shows the relative frequency of occurrence of erysipelas and pyæmia during the different months of the year, deduced from the records of the hospital for the time mentioned.

TABLE No. 2.

Months.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total.
Erysipelas.	87	75	110	123	122	68	49	32	23	40	63	67	859
Pyæmia ...	12	13	19	23	32	30	20	11	14	17	9	19	219

The facts reported were taken from the hospital register, and not from notes of cases, and are therefore but approximative in the case of erysipelas, since the tabulated ones are those only in which the disease was either present on the patient's admission, or in which it had an unfavorable termination. Cases of erysipelas complicating wounds or other injuries, and terminating in recovery, would not be found recorded in the register. The number of cases of erysipelas, therefore, which have been treated in the hospital during the period mentioned, must be considerably larger than that which appears in the report.

In collecting the cases of pyæmia this source of error was avoided, inasmuch as this disease being uniformly fatal, almost every case must have been entered in the register as a cause of death. There is reason to suspect, however, that owing to the imperfect manner in which pathological inquiries were made in former years a certain number of cases of pyæmia were overlooked, having been neither recognized during life nor detected on post-mortem examination. Such cases would, therefore, be recorded under a false name in the hospital register, and would not appear in the table.

Dr. T. K. Cruse, late house surgeon of Bellevue, in an article on "The Treatment of Compound Fractures of the Leg," which also appeared in *The Record*, states that "Bellevue Hospital has reached a period in its existence when, in the words of Billroth, the building is a mere slaughter-pen of the wounded. Spite of the most careful and judicious sanitary arrangements, recovery from an amputation of the thigh for injury is without the recollection of the oldest inhabitant; and when the surgeon finds pyæmia follow exsection of the elbow, and in fact the most

trifling operation whereby the medullary canal of a bone is in any wise invaded, he is sorely tempted to refrain from interfering in such cases, not willing to subject himself to the imputation of hastening a termination which he knows must be death, whatsoever course be followed.*

The Marine Hospital at Chelsea, Mass., although in use only about thirteen years, has scarcely ever been free from erysipelas for several years, and cases of pyæmia, though not reported as such, are believed to have occurred. On the 1st of May last erysipelas broke out in the Marine Hospital at Saint Louis as the result of overcrowding; the wards, like those of Chelsea Hospital, being badly planned and poorly ventilated. In a very few days nearly every patient showed evidences of the poisonous influences to which they were exposed. The Supervising Surgeon, visiting the hospital at this time, directed that the patients should be removed from the building, and the wards cleansed and thrown open for a number of days to the free circulation of the winds.

An outbreak of pyæmia or erysipelas should be the signal for prompt, decided action. The patients who are attacked with the disease should be removed at once and the ward emptied, thoroughly cleaned, exposed to sunlight if possible, and to the free circulation of air day and night; the walls and ceilings should be scraped and whitened with lime, or, if they are painted, thoroughly washed with soap and water. If this does not prevent the recurrence of the dreaded diseases, the plastering should be removed and replaced by new; and if this does not prove effectual, it would, in my opinion, be wise to tear down the infected building or burn it up.

That the Jews were familiar with some of the practical measures herein proposed is shown by the following passage from the Old Testament:

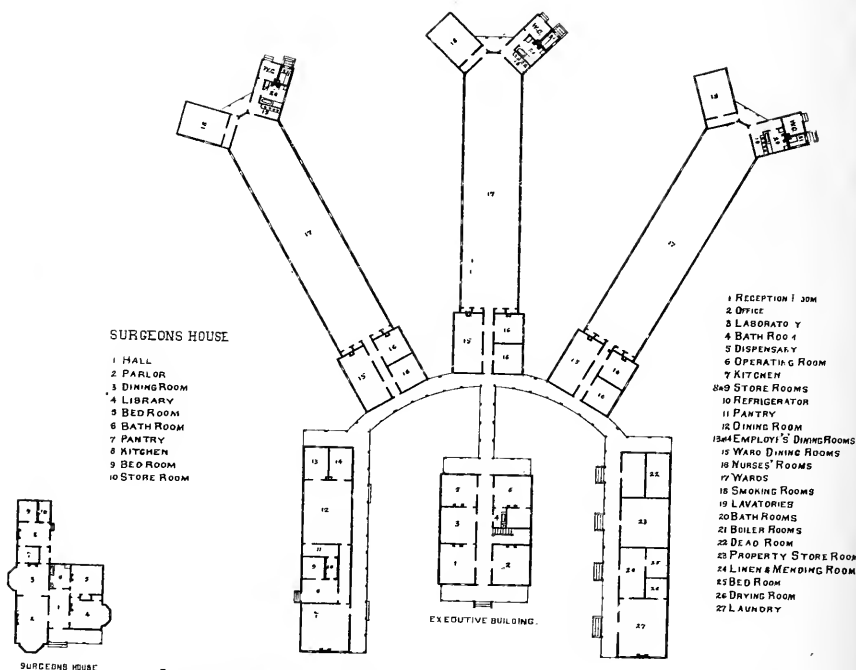
And the priest shall come again the seventh day, and shall look; and, behold, if the plague be spread in the walls of the house; then the priest shall command that they take away the stones in which the plague is, and they shall cast them into an unclean place without the city; and he shall cause the house to be scraped within round about, and they shall pour out the dust that they scrape off without the city into an unclean place: and they shall take other stones, and put them in the place of those stones; and he shall take other mortar, and shall plaster the house. And if the plague come again, and break out in the house, after that he hath taken away the stones, and after he hath scraped the house, and after it is plastered; then the priest shall come and look; and behold, if the plague be spread in the house, it is a fretting leprosy in the house: it is unclean. And he shall break down the house, the stones of it, and the timber thereof, and all the mortar of the house; and he shall carry them forth out of the city into an unclean place.—*Lev. xiv., 39, 45.*

Florence Nightingale, in her *Notes on Hospitals*, says: "No stronger condemnation of any hospital or ward could be pronounced than the simple fact that any zymotic disease has originated in it, or that such

*Patients of the Marine-Hospital Service were formerly treated in this hospital, but owing to the large percentage of mortality among them it was deemed wise to discontinue sending seamen there.



Plate III.



Approved

Ed. M. Woodworth
 Supervising Surgeon

BLOCK PLAN
 OF
 U.S. MARINE HOSPITAL
 SAN FRANCISCO, CAL.

N. T. Mullen
 Supervising Architect

diseases have attacked other patients than those brought in with them. And there can be no stronger condemnation of any town than the outbreak of fatal epidemics in it. Infection and incapable management, or bad construction, are in hospitals, as well as in towns, convertible terms."

It is believed that the evils described in the foregoing pages may be avoided by conforming to the following general system of construction and disposition of hospitals, of which, as to construction and arrangement, the proposed Marine Pavilion-Hospital at San Francisco, authorized by an act of the Forty-second Congress, will serve as an illustration.

As will be observed in Plate III, representing the block plan of the new hospital, the wards and the buildings devoted to the kitchen and laundry are grouped around the executive building, with which they are connected by a covered corridor, provided with a sunk railway-track, on which to run a hand-car for the easy transportation of heavy articles from one building to another.

The buildings are to be constructed of California red-wood, and, excepting the executive building, will be one story in height. The estimated total cost of the wards and associate buildings, including the residence of the surgeon, is about \$58,000; thus securing the most favorable conditions for the treatment of the sick and disabled in a comparatively economical manner, and combining, in the arrangement, the advantages of three distinct hospitals with the greatest convenience and efficiency of administration. Some of the details of the plan of this hospital are given in the following discussion of

HOSPITAL CONSTRUCTION,

as a prerequisite to which, the selection of a suitable *Location* is important. A hospital designed for the treatment of acute diseases should be so located as to be easily accessible. The site should be free from nuisances of every kind; abundantly supplied with pure fresh water; sufficiently elevated to insure good surface and sub-soil drainage, and isolated to an extent sufficient to give the grounds the necessary exposure to currents of air. Although the San Francisco Hospital is not yet located, owing to causes stated in the Report to which this paper is appended, it is to be hoped the foregoing desiderata will be secured in the site ultimately determined upon.

Basis of hospital arrangement.—The hospital proper should consist of pavilions or separate detached buildings of wood, (Plate IV,) one story in height preferable, and of simple architectural design, constructed with the view of destroying them so soon as the peculiar hospital diseases, erysipelas, pyæmia, gangrene, etc., are engendered by the cumulated miasm of the patients, a condition which usually obtains after the continued use of a ward for ten or fifteen years, the time depending

mainly upon the amount of air-space to each patient and the character of the ventilation.

Ground arrangement of wards.—The pavilions for the sick should be arranged on parallel or radiating (fan-shaped) lines, running as nearly as possible north and south, thereby receiving the direct rays of the sun during the larger portion of the day.

Distance between the wards.—In determining the distance between the pavilions, the elevation of the site and the natural exposure to sunlight and currents of air should be taken into account. An intervening distance, between the buildings, of double the height of the pavilions will usually be found to be sufficient.

Number of floors.—The most healthy hospitals are pavilions with one floor; this is because they require less practical care to secure good ventilation. A pavilion with two floors is not seriously objectionable, provided the system of ventilation is distinct for each floor. Beyond this the ventilation is apt to be imperfect, and the care and proper supervision greater than is likely to be given.

Number of wards to a floor.—There should be but one ward to a floor. Cross-walls or partitions obstruct the ventilation, and it is not probable that the strictest care can prevent the foul air passing from one ward into another on the same floor where there is a communicating door. The only plan in which two wards on one floor are admissible is where the administrative offices and the stairway to the upper wards are in the center of the building, with access to wards right and left, as in the new Marine Hospital at Chicago, (see Plate II.)

Size of wards.—The larger the ward the greater the number of patients that can be accommodated, and the fewer the number of attendants required in proportion, as well as the greater the facility of supervision. There is a limit, however, to the size of the ward fixed by sanitary and economical conditions. The ventilation is found to become impeded if the length of the ward is over five times the width. As a general rule the length should not exceed four times the width. The most desirable width is 28 feet, but in no case should it be less than 25 nor more than 30 feet, and the height should be about 17 feet; the latter will, however, be governed in a measure by the length of the ward, but should not be less than 15 nor more than 20 feet.

Cubic space.—The amount of cubic air-space necessary to each patient depends, first, upon the effectiveness of the ventilation, and, consequently, upon the size of the ward; and next, upon the location of the hospital, whether it be located in the centre of a large city or in the open country. In a city, the allowance should not be less than 1,800 feet per patient for large wards; while small wards should have a capacity of about 2,500 cubic feet per patient, for the reason that the severe cases are usually placed in the small wards, and also because of the greater difficulty of ventilating such.

Superficial space.—A matter quite as important as the cubic air-space

is the superficial area allowed to each bed, which, as a rule, should not be less than 100 feet.

Number of patients to the ward.—In accordance with the foregoing rules a ward 28 feet wide, 17 feet high and 120 feet long will accommodate thirty-two patients, giving to each 105 feet of surface area, and about 1,800 cubic feet of air-space.

Small wards.—Small wards are necessary in connection with a large hospital, for the purpose of isolating certain patients; but, as far as possible, such wards should be independent of the large ones.

Bath- and wash-rooms and water closets.—These should be separated from the ward by a well ventilated passage. In Plate IV the building for these purposes is shown attached to one corner of the ward, nearest to which is the wash-room, provided with porcelain basins supplied with hot and cold water; next beyond is the bath-room, which has a bath-tub, sitz- and steam-bath, and a marble table, which is convenient in treating cases of sun stroke, etc. The room containing the water-closets should be separated from the passage to the ward by a door fitted to swing both ways, and which should always remain closed when not in use. The basins with syphon traps should be well supplied with water, and arranged with close-fitting covers and a steam-pipe opening within the enclosure to enable the basin to be disinfected from time to time by steam. The sink for ward slops, etc., should be in the same apartment with the water-closets. The water-system for closets, although attended with many disadvantages, is believed to be preferable in large hospitals, provided the sewerage is good and the drain properly ventilated. The latter can be accomplished by carrying the soil-pipe, full size, through the roof and leaving it open for the escape of all gases. The use of the dry-earth system in the marine hospitals has not been attended with fully satisfactory results; the partial failure being due, no doubt, to want of care. The conditions for the successful use of dry earth are simple, being merely the application of a sufficient quantity of dry powdered earth to completely cover the excretions and absorb all the fluids; but it has not been shown that the resulting mixture, although rendered inodorous, may not, under certain circumstances, emit poisonous exhalations.

Reading- and smoking-room.—It is desirable to have a room connected with each ward where the patients, who are well enough to leave their beds, can sit during the day to read and smoke. Room 18, in Plate IV, is designed for these purposes.

Nurses' rooms.—In the plan of the San Francisco Marine Hospital, (Plate IV, 16,) the principal nurses' room is placed near the entrance of the ward, and is provided with a window which commands a view of its entire length. By this means the supervision of the nurse is made easy and more effectual, which is quite essential to proper care of the sick. Patients are often saved from serious mischances by the timely intervention of the nurse, so that the importance of this is obvious.

Ward dining-room.—This is located opposite the nurses' room in the accompanying plan, (Plate IV, 15,) and is provided with a small range for special-diet cooking, preparing fomentations, etc.

Material for floors.—One of the uniform defects in the old marine hospitals are the poor floors. Hospitals floors should be made of a compact, close-grained wood, such as cherry, oak, or ash, and with the joints filled with white lead in oil to insure an impervious surface. The floors of the new Marine Hospital at Chicago are laid on cement which is filled in between the iron joists. This prevents the possibility of any filth accumulating under the floor. It is important to fill the pores of the wood to prevent the floor from absorbing or holding water. This may be accomplished by laying on, with a brush, either paraffin dissolved in one of the cheap hydrocarbon oils, or boiled linseed oil or beeswax. The old custom of scrubbing or scouring the ward floors should be abolished.

Walls and ceilings.—Scarcely less than the floors the walls and ceilings of a hospital require a smooth, hard, non-absorbent surface. That plastered walls absorb organic effluvia and become poisonous to the occupants of the building, abundant examples prove.

A case was reported to the French Academy of Medicine in 1862, in which an analysis of the plaster of a hospital wall gave 46 per cent. of organic matter.* As has been already shown, the Jews, the earliest sanitarians, understood this subject and applied a practical remedy. They scraped the walls and carried the dust "without the city into an unclean place;" and when this did not suffice they tore down their stone houses and disposed of the stones, mortar, and timbers in the same way.

Walls of Parian cement are recommended and used abroad; but as the cement, from its hardness, is liable to crack when applied to the lathed walls and ceilings of wooden buildings, its use would not be practicable for such hospitals as are now recommended. Until some better material for covering walls is discovered or invented, it is believed that a smooth lime and sand plastered surface, painted with several coats of lead in oil, and frequently washed with soap and water; or such a wall frequently "white-washed" with lime, and periodically scraped, will give as good results as any plan now in use, excluding those which would be considered too expensive.

The process of painting or scraping and "white-washing" the walls would necessitate the vacating of the ward for a time; but this is desirable, since the vacating of a ward from time to time and opening wide the windows to admit free currents of the outer air will remove the peculiar hospital odor, a fact which I have observed in examining some of the old marine hospitals which have been abandoned for a time. It seems almost superfluous to add that the walls should be free from all unneces-

* Galton, 1869, p. 23. Plastering-hair probably formed a large portion of this enormous percentage.

sary angles and ornamentation upon which dust would be liable to lodge. The wood-work of a ward should be severely plain, so as to be easily cleaned. Pine, covered with several coats of shellac varnish, answers the purpose well, and is economical.

Light, heat, and ventilation.—The windows of a ward should be opposite each other, and should be arranged at such intervals as that not more than two beds need be placed between any two windows. Such an arrangement affords abundant light, which is as necessary for man as for plants, and, in addition to its physical sanative effects, the patients are enabled to read in bed, thus affording healthy exercise to their minds—an employment worthy of encouragement as a sanitary measure. In the plan of the San Francisco Marine Hospital the windows are 3 feet wide, 7 feet apart, and come within 3 feet of the floor. Over each window there is a large transom, which may be opened to any degree, or closed, by means of a cord working over a pulley. By opening every other transom and raising the opposite corresponding window from the bottom a few inches, and placing vertically on the sill a board, which should be about twice as wide as the opening and a few inches removed from the window, a free interchange of the outer and inner air may be obtained without exposing the patients to direct draughts of air.

This mode of ventilation can be used to any considerable extent only when the temperature of the outer air is mild. The open fire-place is the best ventilator of a ward when the weather without is such as to render it necessary to keep the windows and doors closed, and no ward should be without an open grate, no matter what other mode of heating is adopted.

It is intended to warm the San Francisco Hospital by two open fire-places placed along the centre of each ward, a plan adopted in the Herbert Hospital, Woolwich, England. The chimney will pass under the floor, and, on reaching the outer wall, enter and pass up through the centre of the fresh-air flue, opening into the ward near the ceiling. By this arrangement the outer fresh air will be warmed several degrees in its passage to the ward, thus utilizing, to some extent, the escaping heat of the chimney. The fire-place is lined with fire-brick, and arranged with cast-iron grating for the coal to rest on. "A clear space, half an inch deep, is formed between the back-lump and iron back to receive a supply of air through the ash-pit under the grate, which passes through a slip in the fire-lump immediately above the fire. The air thus brought into contact with the heated coal is received at a high temperature, in consequence of passing through the heated fire-lump, and is forced into contact with the gases from the coal by means of the piece of fire-lump which projects over the fire at the back of the grate, and thus a more perfect combustion of smoke is effected than with an ordinary grate; in fact, with care, almost perfect combustion of the fuel and consequent utilization of the heat can be obtained."* In

* Galton, pp. 87, 88.

the use of this grate the air of the ward is warmed by direct radiation from the fire in the open grate; by radiation from the sides, back, and top of the iron casing of the fire-bricks, (which casing, owing to its extent and to the intermediate air-chamber between it and the fire-bricks, does not become so heated as to burn the air;) and by the heat in the chimney, which warms the incoming fresh air.

Drainage and sewerage.—All drains should be ventilated. This is best accomplished by continuing the main drain-pipe (into which the lesser ones enter) straight up through the top of the building. The drains should not pass under any portion of the hospital, and consequently should be placed in the outer walls. Care should be taken that no fresh air supply-flue opens near the sewer.

Kitchen.—The kitchen and provision store-room should be separated from the wards. In the plan of the San Francisco Hospital, (Plates III 7 to 14, and V,) the kitchen, provision store-room and general dining-rooms are located in a distinct building, connected with the wards and other buildings by a covered corridor. Each ward is also provided with a small dining-room for the accommodation of such patients as are unable to walk to the general dining-room, and for other purposes already mentioned. Properly cooked food is a desideratum of primary importance in a hospital, and in order to secure it the kitchen should be provided with adequate facilities for cooking the food in the best manner. The kitchen of the new Marine Hospital at Chicago, recently fitted out, contains an 8-foot range provided with the usual accompanying utensils; a 28-inch broiler; a 40-gallon stock-boiler, fitted with a steam-coil inside, for preparing the "stock" for soups; a steam-tank, in which to cook vegetables; a hot-water boiler in which the water is heated by steam, etc. The special-diet kitchen contains a 4-foot range, on which to prepare articles of special diet, and a galvanized iron bake-oven of sufficient capacity to keep the hospital supplied with good, fresh bread.

Laundry.—While it may be admissible, under certain circumstances, to place the kitchen in the same building with the wards for the sick, the laundry should never be so located, but should be sufficiently remote from the wards as to avoid contaminating the air breathed by the patients. The room devoted to washing the linen should be of ample size, well supplied with water, and provided with means of ventilation adequate to the speedy removal of the steam. The soiled linen should be removed to the wash-house as soon as taken from the beds or persons of the patients; and, as soon as washed, dried, and mended, should be classified and laid on an open frame-work to admit of a thorough airing. In the plan of the San Francisco Hospital, (Plate III,) the laundry has the same relative position to the wards and executive building as the kitchen and dining-rooms. For the sake of convenience, the building (Plate VI) is made to serve the three-fold purpose of laundry, property store-room, and dead-room; but it will be observed that each is entirely

separated from the other. Connected with the wash-room (27) is a drying-room, (26,) and a linen- and mending-room, (24.)

Executive building.—The executive building should be centrally located so as to admit of easy and rapid communication with all of the other buildings. It should contain the office of the surgeon; a reception-room; a dispensary and laboratory, and may accommodate the operating-room. The executive building, as provided in the plan of the San Francisco Hospital, (Plates III and VII,) contains the rooms named, and connected with the operating-room is a wash- and bath-room, and a small ward for the temporary use of patients after operations. In the second story of the executive building are the sleeping apartments of the steward, apothecary, matron, etc.

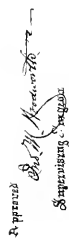
The surgeon's house.—The surgeon, or an assistant, should reside in the hospital or live on the premises, so as to be within easy calling-distance at all times. The old practice of subsisting the surgeon and his family in hospital, without regard to the extent of such family, and which had grown into a serious abuse, is abolished by the regulations approved by the Secretary of the Treasury, October 1, 1873. Anticipating this desirable change, a surgeon's house was added to the plan of the San Francisco Hospital, (Plates III and VIII,) with the belief that such provision will not only work economy to the Service, but add to the efficiency and comfort of the surgeon.

Cost of the pavilion-hospital.—The economy of the proposed plan of the pavilion-hospital is best exemplified by a comparison of the cost of the old-fashioned hospital of the same capacity with the estimated cost of the one built according to the accompanying plans. The old hospital at San Francisco, which this is intended to replace, cost \$231,871; the one now in use at Chelsea, (port of Boston,) cost \$394,047; that at Chicago, just completed, cost \$422,107; while upon the unfinished one at New Orleans \$530,000 has been expended; being an average cost of nearly \$400,000 for every hospital now owned by the Government of equal capacity with the one proposed.

The estimated total cost of the San Francisco Marine Pavilion-Hospital, including the surgeon's house and all other buildings, is \$58,789.56.

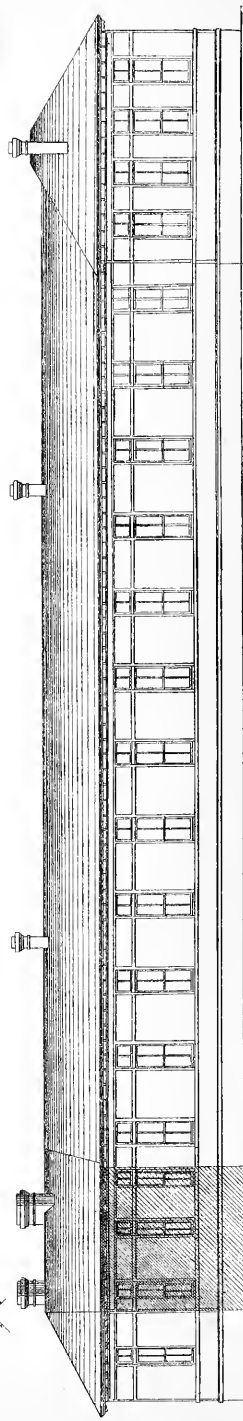


1' Bath Tub
2' Sink Basin
3' Wash Basin
4' Steam Bath
5' Marble Stair



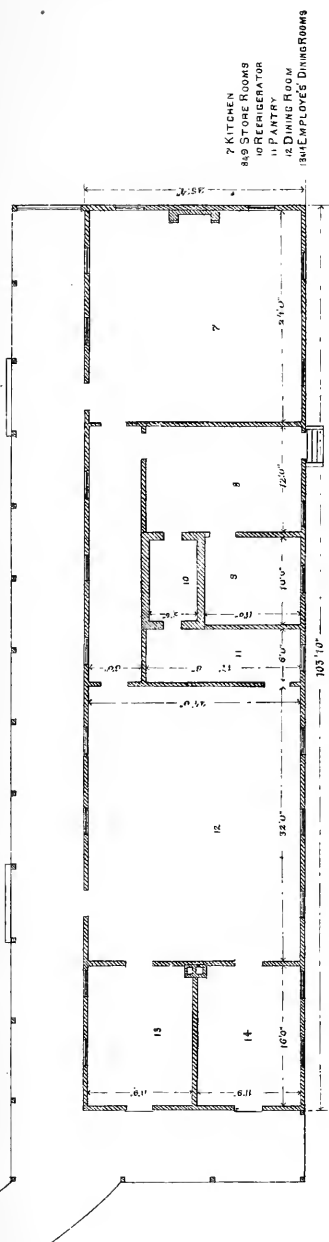
WARDS &
U.S. MARINE HOSPITAL.
SAN-FRANCISCO, CAL.

H. J. Ireland
Supervising Architect

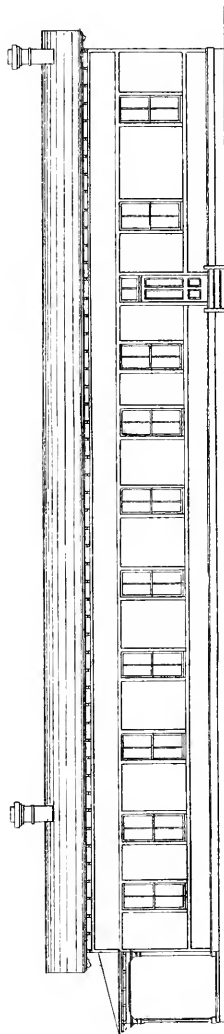


ELEVATION





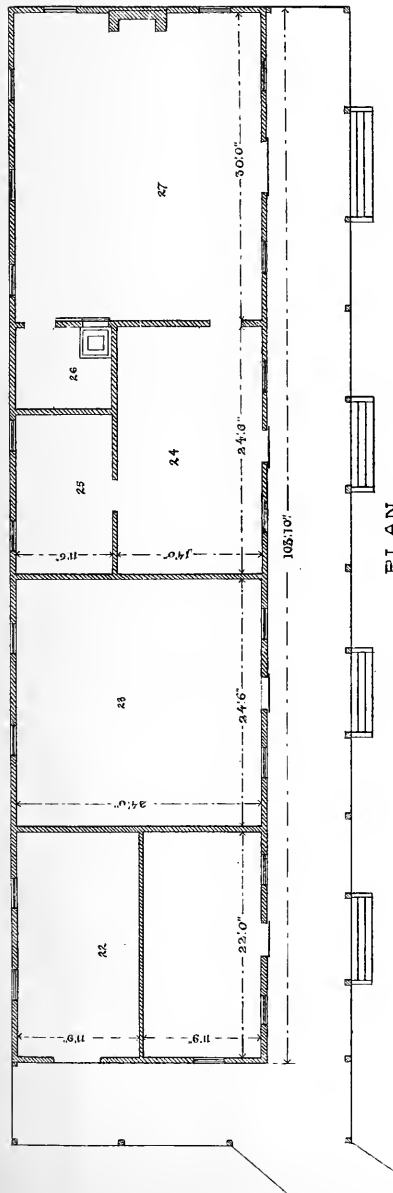
KITCHEN, DINING ROOM, &c.
U.S. MARINE HOSPITAL
SAN FRANCISCO, CAL.



A. H. Miller
Superintending Architect

Approved
Wm. H. Woodworth
Superintending Surgeon

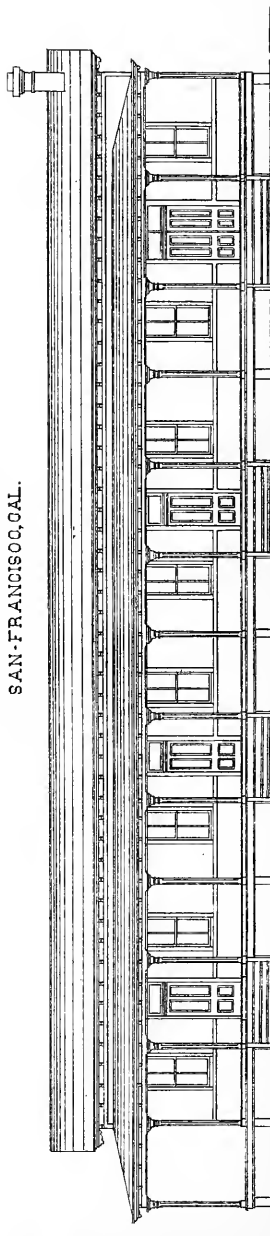
ELEVATION.



- 22 DEAD ROOM
- 23 PROPERTY STORE ROOM
- 24 LINEN & MENDING ROOM
- 25 BED ROOM
- 26 DRYING ROOM
- 27 LAUNDRY

PLAN.

LAUNDRY. STORE-ROOM. &c.
U.S. MARINE HOSPITAL
SAN-FRANCISCO, CAL.



ELEVATION.

Approved
Geo. W. Rodworth,
Superintending Surgeon

A. W. Mullen
Superintending Architect

Architectural floor plan of a house, labeled "Plate VII." in the top right corner. The plan shows a rectangular layout with several rooms and a central staircase. Rooms are numbered 1 through 6. Dimensions are given in feet and inches. The overall dimensions are 46' 4" wide by 36' 10" deep. The plan includes a front porch (1), a large living room (2), a dining room (3), a kitchen (4), a bathroom (5), and a bedroom (6). A central staircase is located between rooms 3 and 4. The plan is drawn with thick lines for walls and thinner lines for room dividers. The text "Plate VII." is in the top right corner.

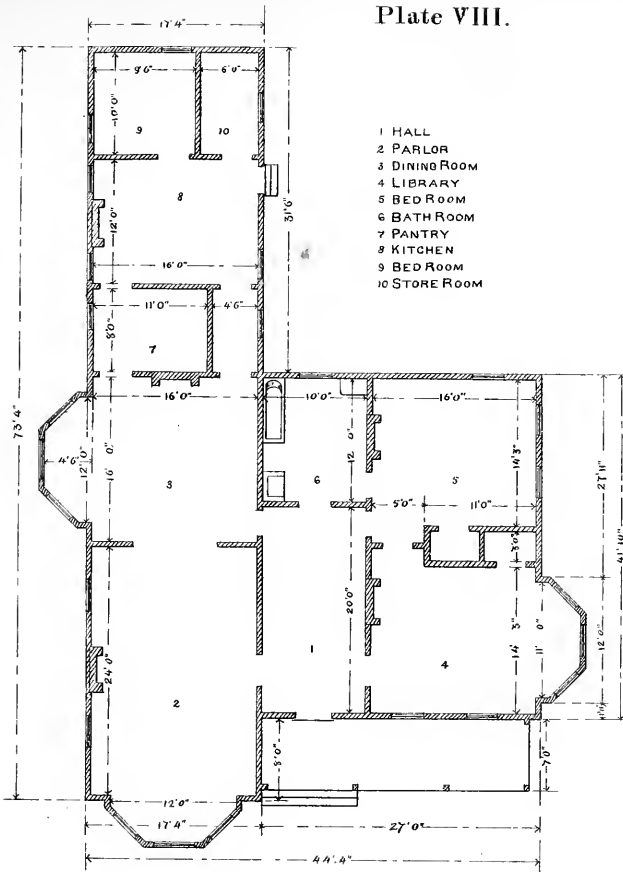
This architectural drawing shows a two-story house with a symmetrical facade. The roof is hipped with two chimneys on the ridge. The second story features five evenly spaced windows. The first story is partially covered by a front porch with a decorative railing and columns. The central entrance is located under the porch, featuring a door with a transom and a small stoop.

proved
D. W. Woodworth,
Superintending Surgeon

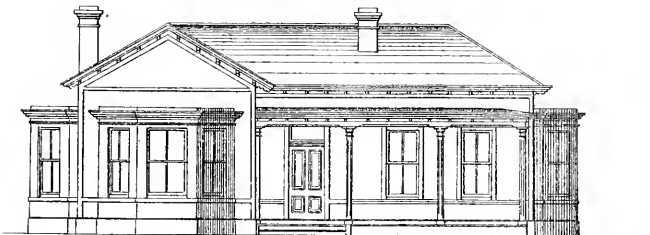
EXECUTIVE BUILDING
U.S. MARINE HOSPITAL
SAN-FRANCISCO, CAL.

A. D. Muller
Supervising Architect

Plate VIII.



SURGEONS HOUSE
U.S. MARINE HOSPITAL,
SAN-FRANCISCO, CAL.

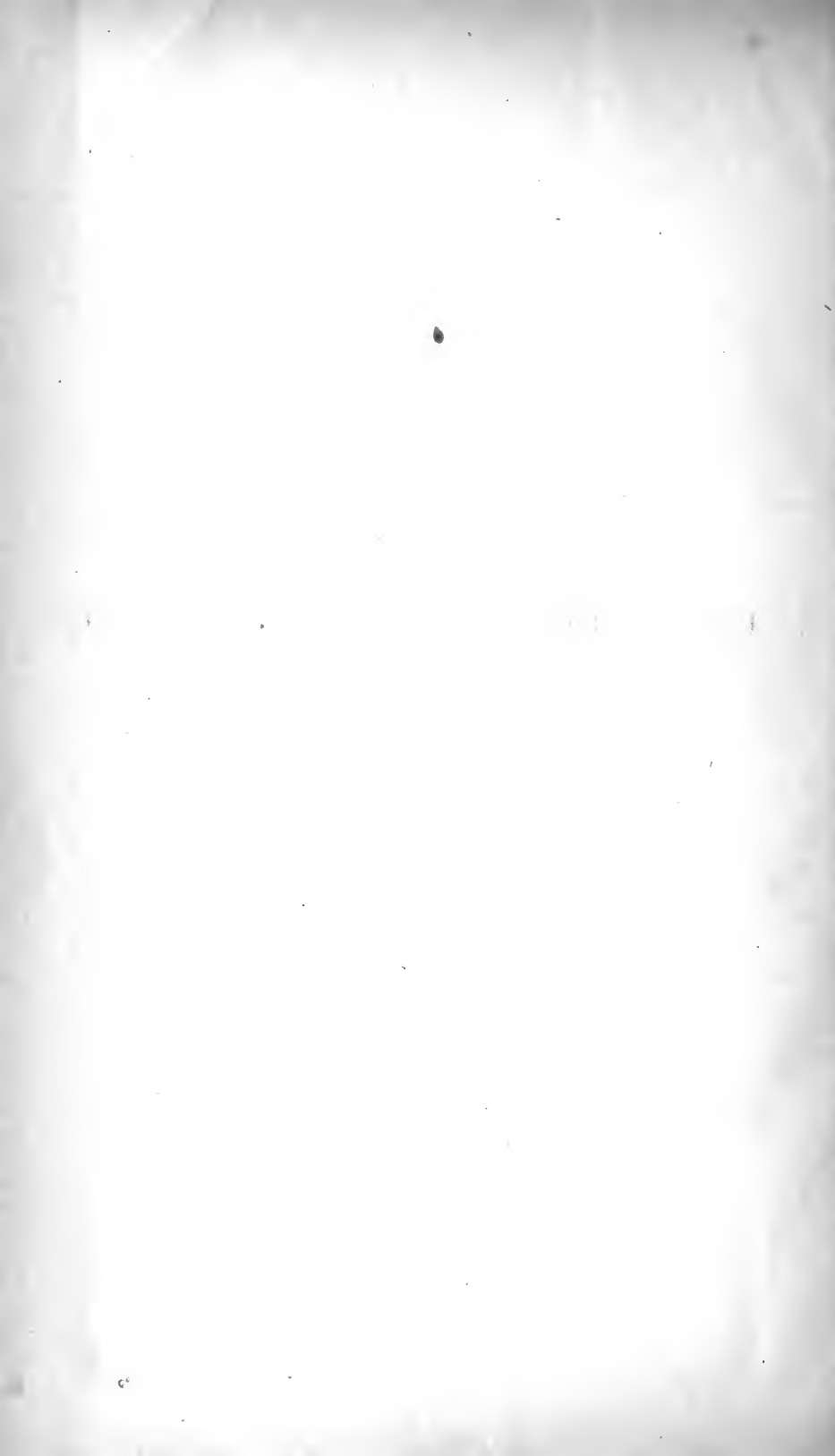


FRONT ELEVATION.

Approved

Des. W. Woodworth
Supervising Surgeon

A. J. M. Allen
Supervising Architect



NATURAL HISTORY OF YELLOW FEVER IN THE
UNITED STATES.

CHART OF YELLOW FEVER IN THE United States

*Giving Elevations above Sea-Level of Localities where
Yellow Fever has appeared since, A.D. 1668.*

Prepared by

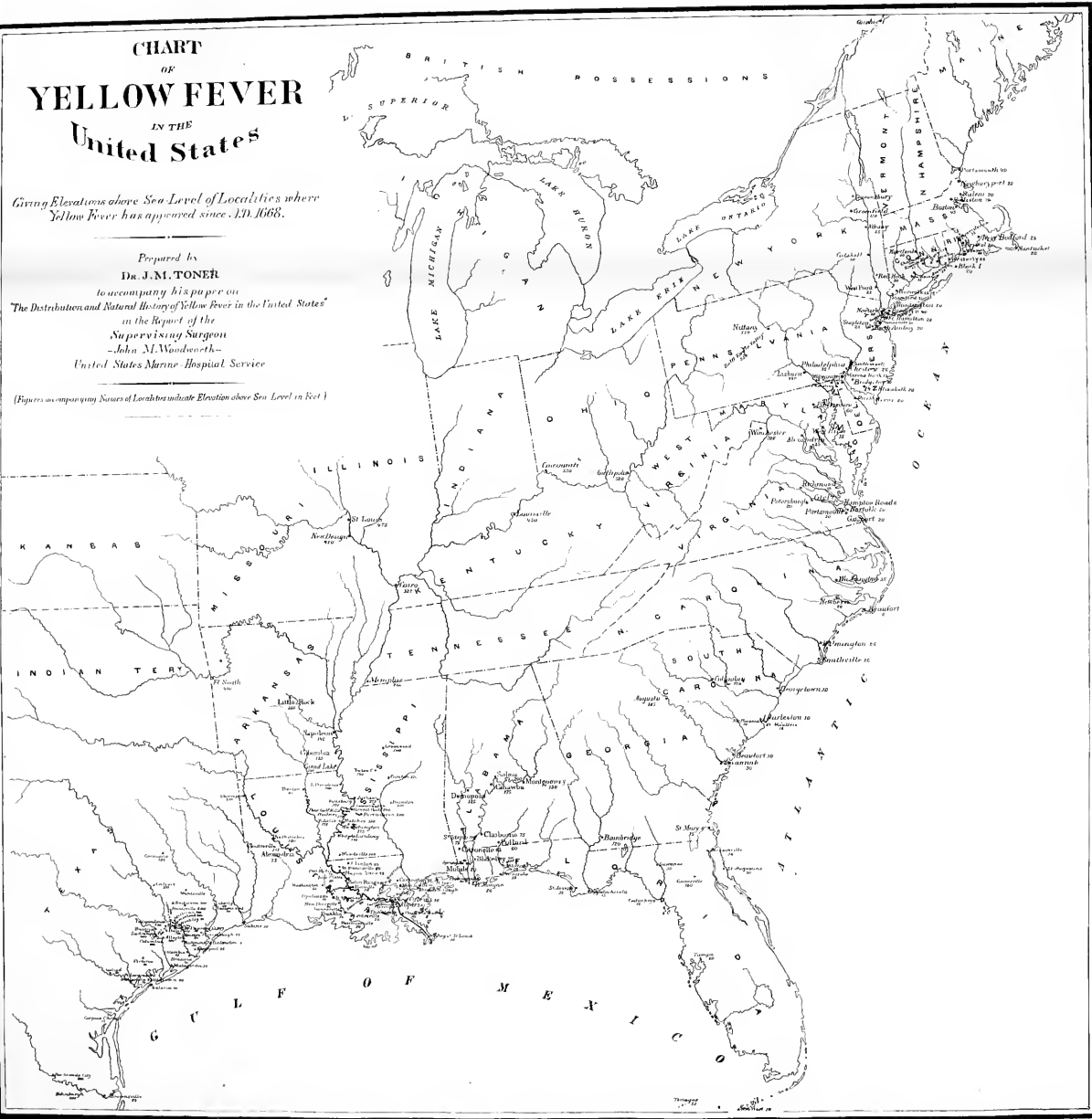
DR. J. M. TONEH

to accompany his paper on

"The Distribution and Natural History of Yellow Fever in the United States"

*in the Report of the
Supervising Surgeon
-John M. Woodworth-
United States Marine Hospital Service*

(Figures accompanying Names of Localities indicate Elevation above Sea Level in Feet)



THE DISTRIBUTION AND NATURAL HISTORY OF YELLOW FEVER AS IT HAS OCCURRED AT DIFFERENT TIMES IN THE UNITED STATES.

BY J. M. TONER, M. D.,

President of the American Medical Association, Washington, D. C.

THE map which accompanies this paper, and which indicates the region where yellow fever has prevailed, either in an epidemic or in a sporadic form since the settlement of our country, is made up from notes taken in the study of the geographical distribution of the diseases of the United States.*

No special opportunities for studying the disease in question are claimed, nor originality in the mode of presenting the facts. Nevertheless, the map is believed to be accurate as far as it goes, if the data derived from past and contemporary medical literature can be relied upon.

Nor is it pretended that this paper is exhaustive, localities not named having, no doubt, been visited by this fever; but we are confident such localities will be found within the region of its general distribution, as here indicated.

The table accompanying this paper, which furnishes mainly the data upon which the map is projected, gives the names of the cities and other localities where yellow fever has occurred in our country from its first settlement, arranged by States in alphabetical order, with the years and dates of its appearance and disappearance.

The elevation of each locality above the sea-level, as far as possible, has been given from reliable sources. In some instances the elevation of a place is assumed from a general knowledge of the altitude of the surrounding country. The errors in these, if any, will be unimportant.

The influence upon localities of elevation above the sea-level, with the exemption from yellow-fever they seem to thence possess, is the view we here wish to call to the attention of sanitarians and of the profession.

We are inclined to give much weight to the theory that diseases have geographical areas and limits, modified somewhat by topographical and climatic conditions, which determine the types of disease as do climate and elevation the fauna and flora of a locality.

The fact has always been patent to the profession, that there are parts of the earth in which particular forms of disease occur, to the almost entire exclusion of others. The study of the causes of this difference is

* The map herewith published is projected from a large one, 8 by 10 feet in size, for the execution of which Dr. TONER desires to express his indebtedness to the kindness of the Hon. WILLIS DRUMMOND, Commissioner of the United States Land Office.—W.

as important as any that can engage the attention of the physician. As a simple factor elevation will, we apprehend, be found to possess qualities both preventive and curative.

We shall in this paper studiously avoid discussing the questions whether yellow fever is a specific disease or not; whether it is always imported; or whether under certain conditions it may originate within our own country.

Nor do we aim to speak as an expert, never having seen a case of yellow fever, but rather appear as a collator of facts in its history. At the present time the natural history of disease, if we may so use the term in describing the special characteristic distribution of diseases that exist in limited geographical areas, is attracting much attention. There can be no doubt that an accurate knowledge of the climate and other physical peculiarities, and of the prevailing meteorological conditions of a region, will greatly aid the sanitariat and physician in preventing sickness, and in treating successfully the diseases incident to a locality.

The more exact and extended this information becomes, the more definitely can physicians mark out the boundaries and the distribution of diseases over the globe, and suggest measures of relief.

The chief factors usually and most naturally taken into account in the study of the salubrity of a State, or even a city, are latitude, longitude, the extremes of heat and cold and mean annual temperature, the prevailing direction of the winds, the general humidity of the air, and the annual precipitation, drainage, etc.

These undoubtedly furnish most valuable information, but there is another important element, that of elevation, which has the power to intensify or counteract the influence of most of them.

The most insalubrious regions are, confessedly, the savannas and tide-water lands of the tropic and temperate zones. The impression is quite general that persons of the same nationality, living on mountains or high table-lands are more rugged and healthy, as a general rule, than their friends engaged in similar occupations on the low lands in the same latitude.

The accompanying map enables us, in a comprehensive way, to consider the question whether elevation has presented any barrier to the progress of yellow fever in the United States, by bringing all localities where it has prevailed, with their altitudes, before the eye at one time.

The fact will be patent to any one that the low lands of the Gulf States and the Atlantic coast, with the water-courses emptying into them, are the regions of its most frequent visitations in the United States.

The conceded home of yellow fever is in the West Indies and the Bahamas, with a portion of the adjacent continents of North and South America. A square formed by the forty-fifth and the one hundredth degrees of longitude, and the thirty-fifth north and the fifth south latitude, will include the favorite region of this disease.

Although originating within the square named, history shows that it may prevail on the sea-coast in any locality within the tropics, north and south of the equator, where malarial fevers prevail, and the daily average of the thermometer is over 75° or 80° with a high dew-point for weeks or months together.

If these latter conditions, however, were the only ones necessary to the development of this disease, it should prevail much more widely; for they exist, during parts of the summer at least, in almost all of our Atlantic cities, as may be seen by reference to the record of temperature shown by the admirable isothermal maps in Lorin Blodgett's *Climatology*.

There are, no doubt, other climatic conditions essential to its origin, if not to its propagation and spread. Once the disease has become epidemic in a place, it can exist at a much lower average daily range of the thermometer than seems to be required for its development.

It is, however, always controlled in its severity and checked in its spread, or entirely arrested by storms, heavy rains, and, most effectually, by frost. This has been exemplified by the polar waves, or "northers," that occasionally blow from the Arctic regions down over Texas, and by long-continued rains.

Yellow fever does not prevail in the East Indies nor in China. It has appeared in most of the maritime cities of the United States on the Atlantic coast, as far north as Boston, and indeed has been chronicled at Quebec and Halifax. But while it is true that it has thus visited many of the cities and towns on the sea-coast, it has, fortunately, never extended far into the interior of our country.

In the United States, it seems to prevail in the large sea-ports and in localities along the navigable water-courses having their outlet in the Gulf of Mexico. Dr. Drake, many years ago, observed that while the disease had appeared at almost every town on the Mississippi, as far up as Vicksburg, that Woodville, twelve miles from the river, was the most remote inland point it had reached. During the late epidemic at Shreveport, a number of deaths occurred, according to the report of the Howard Association, at points outside the city limits—distances from the city not given. The places named are Caddo Parish, Marshall, Greenwood, and Summer Grove.

The same accurate observer (Dr. Drake,) remarks that yellow fever is eminently a disease of cities rather than of rural districts, and of villages rather than of scattered country dwellings. It has been shown that towns of small population are less liable to suffer than larger ones, and the same town within the yellow-fever zone, as its population increases, is more likely to suffer than when its population was less. Hence density of population, or proximity of numerous individuals approaching to crowding, is believed to be a factor of no small influence in the propagation and spread of the disease.

Its appearance in a locality is generally coincident with bilious intermittents, and the first cases are said always to occur near the water in the lowest and most insalubrious places.

It has been observed that its epidemical limits coincide with the range of the growth of the live-oak, the cypress, and the long mosses. Certainly the regions of our country most frequented by this disease are particularly low and flat, with numerous rivers and much marsh and swamp lands, as may be inferred from the localities and their elevations marked on the map. These low lands are to a considerable extent covered with the cypress, long-leaved pine, and other indigenous trees, with thick undergrowth when in an unredeemed or natural state. The northern limit of the growth of the cypress is not much north of Norfolk.

Yellow fever has been considered by nearly all writers a distinct disease from the autumnal remittent fevers of the temperate zone. All agree that it is indigenous at Vera Cruz on the Gulf of Mexico. When we examine into the climatic conditions of this locality, nothing special or satisfactory as an explanation of the peculiarities and origin of the disease has been discovered.

Protracted average high temperature is a constant factor there, but this of itself is deemed insufficient. The time has, perhaps, not come, if it ever does, for the discovery of all the elements entering into its development.

No doubt there are numerous undiscovered factors and conditions, essential to its existence and present in varying intensity, in different years, and which greatly add to its rapid spread and virulence. The mortality from the disease at the same place is much greater in some seasons when the conditions of heat and moisture are apparently the same. Again, extreme heat and dryness stop the epidemic, as do heavy and protracted rains.

As we have already stated, the conditions of long-continued heat, averaging over 75° throughout the twenty-four hours, and great humidity exist almost constantly during the summer in the Gulf States. Occasionally during the summer season, for months together, this condition of high temperature, but with less moisture, may exist in many of the coast cities of our country, as far north as Boston, and yet rarely ever are these cities visited by this disease in an epidemic form.

Is the exemption of these more northern coast cities due alone to climatic conditions, or are they in part exempted by sanitary and quarantine regulations? Yellow fever is almost annually reported on vessels at the quarantine stations, where it is fortunately arrested and prevented from entering the cities. In the table of the localities where the disease has prevailed, no distinction has been made between the city proper and the quarantine stations which, in a more careful study, should be made.

The average annual distribution of moisture throughout our country is made manifest by a glance at Chas. A. Schott's Tables and Results of

the Precipitation in Rain and Snow, published in 1872 by the Smithsonian Institution, a most valuable contribution to knowledge in this direction. The humidity in the atmosphere is relative to the season, and, as is well known, the absolute humidity is greater in the summer than in the winter, warm air having a greater capacity to contain moisture than cold air, as the following table from Professor Guyot will show. This table expresses, in troy grains, the weight of vapor contained in a cubic foot of saturated air at the stated temperatures of Fahrenheit :

Temperature of air.	Vapor in grains.	Temperature of air.	Vapor in grains.	Temperature of air.	Vapor in grains.
0°	0.545	63°	6.331	80°	10.949
5	0.678	64	6.575	81	11.291
10	0.841	65	6.795	82	11.643
20	1.298	66	7.021	83	12.005
30	1.968	67	7.253	84	12.376
32	2.126	68	7.493	85	12.756
40	2.862	69	7.739	86	13.146
45	3.426	70	7.992	87	13.546
50	4.089	71	8.252	88	13.957
55	4.860	72	8.521	89	14.378
56	5.028	73	8.797	90	14.810
57	5.202	74	9.081	91	15.254
58	5.381	75	9.372	92	15.709
59	5.566	76	9.670	93	16.176
60	5.756	77	9.977	94	16.654
61	5.952	78	10.292	95	17.145
62	6.154	79	10.616	96	17.648

To see how far the conditions of a higher than ordinary average of temperature and a greater degree of humidity may have existed in Memphis and Shreveport during the prevalence of the epidemic of the past summer, we have been enabled, through the courtesy of General Myer, to tabulate the returns, nearly complete, made from Memphis to the United States Signal Bureau for the months of August, September, October, and November, 1872 and 1873. The former year, being healthy at this place, is included for the purpose of contrast. The meteorological tables for Shreveport are compiled from the observations furnished by Dr. J. L. Moore, of Shreveport, the regular observer for the Smithsonian Institution at that point. In addition to the ordinary observations, Dr. Moore gives the daily number of deaths occurring from yellow fever, which, for convenience, is placed in a parallel column on the side of the meteorological table, and on the line of the other daily observations. For Shreveport we are not able to give the observations in 1872 for contrast :

TABLE SHOWING THE METEOROLOGICAL CONDITIONS OBSERVED AT SHREVEPORT, LA., DURING THE YELLOW-FEVER EPIDEMIC OF 1873.

Compiled from the Register of Meteorological Observations under the direction of the Smithsonian Institution, J. L. Moore, M. D., Observer, to which is added the daily Number of Deaths from Yellow Fever.

[SHREVEPORT: County of Caddo, State of Louisiana; latitude, 32° 30' north; longitude, 93° 45' west; height above the sea-level, 228.52 feet.]

Day of month.	Thermometer in the open air.				Rain-fall, inches.	Amount of cloudiness.			Winds.*						Barometer reduced to freezing-point.	Relative humidity or fraction of saturation.†			Deaths from yellow fever.
	7 a. m.	2 p. m.	9 p. m.	Mean.		7 a. m.	2 p. m.	9 p. m.	7 a. m.		2 p. m.		9 p. m.						
									Direction.	Force.	Direction.	Force.	Direction.	Force.					
Aug. 1	79	88	81	82 ³ ₄	...	4-4	1-2	3-4	S.W.	5	S.	5	0	0	30.111	.86	.55	.83	
2	80	89	84	84 ³ ₄	...	1-4	4-4	0	S.W.	6	0	0	0	0	30.068	.82	.53	.79	
3	80	90	85	85	.01	1-2	3-4	1-4	S.W.	7	N.W.	5	N.	1	30.083	.82	.53	.79	
4	80	80	79	79 ³ ₄	.40	3-4	4-4	1-4	E.	6	N.E.	12	0	0	30.132	.78	.78	.87	
5	74	84	78	78 ³ ₄	...	3-4	3-4	0	N.E.	8	N.E.	7	N.E.	5	30.135	.76	.53	.69	
6	74	87	81	80 ³ ₄	...	1-4	1-2	1-4	N.E.	6	N.E.	7	N.	5	30.065	.72	.45	.70	
7	80	81	80	80 ³ ₄	...	4-4	4-4	1-2	0	0	E.	5	0	0	29.996	.78	.55	.82	
8	78	88	77	81	.13	0	4-4	3-4	S.E.	1	0	0	E.	2	29.994	.73	.52	.77	
9	77	87	81	81 ³ ₄	.11	1-4	3-4	3-4	E.	5	E.	7	E.	1	30.055	.82	.55	.78	
10	76	87	80	81	...	4-4	3-4	4-4	E.	2	E.	8	E.	1	30.102	.91	.58	.82	
11	81	90	83	84 ³ ₄	...	1-2	3-4	0	N.E.	4	S.E.	8	N.	4	30.031	.78	.60	.71	
12	82	91	81	84 ³ ₄	...	3-4	3-4	4-4	N.	2	E.	5	E.	4	30.038	.79	.57	.78	
13	78	91	85	84 ³ ₄	...	3-4	3-4	1-2	S.W.	6	S.W.	7	S.W.	2	30.014	.86	.54	.72	
14	80	90	76	82	.60	3-4	3-4	1-2	0	0	S.W.	7	0	0	29.971	.82	.56	.91	
15	76	91	77	81 ³ ₄	.24	3-4	3-4	4-4	N.	4	N.	2	S.E.	8	29.895	.91	.60	.91	
16	75	85	79	79 ³ ₄	...	4-4	4-4	3-4	N.E.	4	N.E.	4	0	0	29.939	.90	.68	.87	
17	76	82	79	79	.05	4-4	4-4	1-2	N.	8	N.	5	N.E.	5	29.997	.91	.83	.78	
18	78	85	79	80 ³ ₄	...	1-2	1-4	0	N.E.	5	N.E.	6	0	0	30.062	.69	.41	.70	
19	77	85	79	80 ³ ₄	...	1-4	1-2	1-4	N.E.	1	E.	4	0	0	30.043	.69	.44	.66	
20	76	85	81	80 ³ ₄	...	3-4	1-2	1-4	E.	1	S.E.	4	S.E.	4	29.961	.73	.47	.67	
21	76	82	79	79	...	1-4	1-4	0	S.W.	1	N.	7	E.	2	29.969	.77	.83	.78	
22	79	86	79	81 ³ ₄	...	1-2	3-4	0	0	0	E.	7	N.E.	2	30.029	.74	.48	.74	
23	76	86	79	80 ³ ₄	...	3-4	3-4	0	E.	2	E.	5	0	0	30.076	.82	.58	.82	
24	81	88	84	84 ³ ₄	...	0	1-2	1-4	S.	2	N.W.	5	0	0	30.107	.70	.49	.75	
25	81	90	83	84 ³ ₄	...	0	1-2	1-2	S.	1	N.E.	4	0	0	30.037	.74	.50	.75	
26	79	90	77	82	...	3-4	3-4	3-4	W.	6	N.	4	S.W.	2	30.020	.78	.53	.82	
27	78	91	86	85	...	0	1-2	0	S.W.	1	N.E.	1	0	0	30.016	.78	.51	.68	
28	78	91	81	83 ³ ₄	...	1-4	1-4	1-4	W.	4	N.W.	2	S.E.	2	30.053	.73	.54	.70	
29	79	84	80	83	.05	0	3-4	0	S.W.	1	0	0	S.E.	4	30.118	.74	.68	.87	
30	80	91	84	85	...	0	1-2	0	S.	2	S.	5	S.W.	6	30.175	.82	.48	.64	
31	80	89	82	83 ³ ₄	...	0	1-2	1-4	0	0	0	0	S.E.	1	30.133	.74	.50	.71	

REMARKS.—Normal summer-heat for this latitude prevailed during the month; mean temperature 82° 56'; highest at 2 p. m., 91° on the 12th, 13th, 15th, 27th, 28th, and 30th; lowest, 80° on the 4th. Force of wind remarkably uniform and moderate, scarcely rising at any time above the degree of "gentle." *Yellow fever*: The first death from yellow fever in Shreveport this summer was observed on the 20th day of August, which date proved the beginning of the epidemic of 1873. Total deaths from the disease during the month, 29.

* The force is estimated and registered by figures from 1 to 10, as in the first column of the following table. The figures in the last column, expressing the number of miles per hour, are used in the above.

1. Very light breeze.....	2 miles per hour.	6. Gale.....	45 miles per hour.
2. Gentle breeze.....	4 do.	7. Strong gale.....	60 do.
3. Fresh breeze.....	12 do.	8. Violent gale.....	75 do.
4. Strong wind.....	25 do.	9. Hurricane.....	90 do.
5. High wind.....	35 do.	10. Most violent hurricane.....	100 do.

† The numbers under the head of "Relative humidity" denote the percentage of saturation; full saturation being indicated by 1, and half saturation by 0.5.

Table showing the Meteorological Conditions observed at Shreveport, La., during the Yellow-Fever Epidemic of 1873—Continued.

Day of month.	Thermometer in the open air.				Rain-fall, inches.	Amount of cloudiness.			Winds.						Barometer reduced to freezing-point.	Relative humidity or fraction of saturation.			Deaths from yellow fever.	
	7 a. m.	2 p. m.	9 p. m.	Mean.		7 a. m.	2 p. m.	9 p. m.	7 a. m.		2 p. m.		9 p. m.							
									Direction.	Force.	Direction.	Force.	Direction.	Force.						
Sept. 1	79	86	83	82.7	...	0	3-4	1-4	S. W.	4	S.	5	0	0	30.071	.78	.58	.71	6	
2	78	91	81	83.3	...	1-2	1-2	4-4	S. W.	7	S.	7	S.	7	30.042	.82	.45	.70	5	
3	79	98	83	84.4	...	3-4	3-4	1-4	S. W.	6	S. W.	10	S.	4	30.032	.82	.45	.60	5	
4	78	92	82	84	...	3-4	1-2	0	S. W.	5	S.	7	S.	4	30.052	.82	.43	.63	2	
5	79	91	85	85	...	1-4	1-4	1-2	S. W.	5	N. W.	5	0	0	30.127	.82	.36	.64	4	
6	77	91	79	82.3	...	3-4	1-2	3-4	N.	1	N. E.	6	N.	14	30.167	.77	.45	.74	7	
7	74	83	72	76.3	.01	1-2	3-4	3-4	N.	7	N.	12	N. E.	8	30.214	.76	.67	.71	10	
8	68	79	71	72.6	...	1-2	1-2	1-4	N. E.	8	N.	10	N. E.	4	30.178	.70	.58	.62	11	
9	67	85	77	76.3	...	1-4	3-4	3-4	N. E.	5	N. E.	5	0	0	30.074	.69	.51	.73	3	
10	75	87	79	80.4	...	1-2	1-2	1-4	N. E.	1	N. E.	4	S. E.	2	30.065	.77	.69	.70	15	
11	77	87	81	81.6	...	1-4	1-2	1-2	N. E.	1	E.	4	S. E.	4	30.050	.73	.65	.59	18	
12	77	76	73	75.3	...	4-4	4-4	4-4	0	0	S. E.	6	S. E.	5	29.999	.75	.82	.90	15	
13	69	76	70	71.6	1.56	4-4	1-4	0	S. W.	1	N. E.	1	N. E.	10	30.076	.90	.64	.80	26	
14	61	69	64	64.7	.06	0	0	0	N. E.	7	N. E.	7	N. E.	4	30.140	.71	.56	.73	24	
15	64	81	69	71.3	...	0	0	0	N. E.	2	S. E.	4	E.	1	30.121	.68	.41	.85	31	
16	67	83	73	74.3	...	0	1-4	0	E.	2	E.	6	0	0	30.107	.74	.30	.67	24	
17	69	85	74	76	...	0	1-4	0	0	0	E.	2	0	0	29.978	.70	.41	.76	18	
18	70	87	79	78.7	...	0	1-4	0	E.	1	N. E.	1	0	0	29.899	.80	.45	.74	19	
19	75	87	72	78	...	0	1-2	0	N. E.	2	N. E.	1	N. E.	8	29.939	.72	.49	.76	16	
20	63	77	69	69.6	...	0	1-4	0	N. E.	6	E.	7	N. E.	4	30.028	.62	.46	.56	14	
21	63	80	69	70.3	.01	3-4	3-4	0	E.	4	E.	7	N. E.	6	30.021	.67	.51	.75	15	
22	65	71	68	68	.05	4-4	1-2	1-4	0	0	N. E.	10	N. E.	2	30.002	.78	.85	.95	18	
23	66	78	68	70.3	...	0	3-4	0	N. E.	5	N.	7	N.	5	29.970	.89	.54	.84	11	
24	62	85	74	73.3	...	0	1-2	0	S. E.	2	S. W.	3	S.	8	29.866	1.00	.47	.76	10	
25	70	87	75	77.3	...	0	1-2	0	S.	4	S. E.	4	S.	E.	2	29.935	1.00	.62	.77	14
26	73	83	76	77.3	...	1-4	3-4	4-4	S. E.	6	S.	5	S.	E.	5	29.988	.85	.83	.82	15
27	75	82	74	77	.48	4-4	4-4	1-2	S. E.	10	S. E.	4	S.	E.	5	29.981	.90	.75	1.00	20
28	77	87	80	81.3	...	3-4	1-2	1-2	S. E.	2	S.	4	S.	6	29.928	.91	.62	.82	11	
29	72	76	69	72.3	.12	4-4	4-4	4-4	N. E.	13	N. W.	6	N. E.	13	30.066	.95	.82	.95	7	
30	64	74	64	67.3	...	4-4	1-4	0	N. E.	7	N. E.	6	N. E.	7	30.146	.73	.76	.73	7	

REMARKS.—Extremes of temperature during this month : Highest at 2 p. m., 92°, on the 4th; lowest, 59°, on the 14th; mean for the month, 76°.14. Humidity appears much greater than last September. Wind variable in force and direction. Yellow fever : Heavy mortality from yellow fever during this month, proving most fatal about the middle of the month, averaging seventy-five per cent. Total deaths from the disease, 406.

Table showing the Meteorological Conditions observed at Shreveport, La., during the Yellow-Fever Epidemic of 1873—Continued.

Day of month.		Thermometer in the open air.				Rain-fall, inches.	Amount of cloudiness.			Winds.						Barometer reduced to freezing-point.	Relative humidity or fraction of saturation.			Deaths from yellow fever.
										7 a. m.		2 p. m.		9 p. m.						
		7 a. m.	2 p. m.	9 p. m.	Mean.		7 a. m.	2 p. m.	9 p. m.	Direction.	Force.	Direction.	Force.	Direction.	Force.		Mean.	7 a. m.	2 p. m.		9 p. m.
Oct.	1	61	75	67	67 ² / ₃	0	2-4	1-2	N. E.	5	N.	5	N. E.	7	30.083	.55	.44	.69	8	
	2	65	79	71	71 ² / ₃	3-4	0	0	N. E.	2	N. W.	2	N. W.	1	30.090	.73	.43	.80	11	
	3	69	84	77	76 ² / ₃	0	1-2	0	N. E.	2	E.	2	S. E.	1	30.023	.75	.54	.69	16	
	4	73	88	80	80 ¹ / ₃	0	1-2	0	S.	1	W.	5	0	0	29.953	.72	.40	.70	7	
	5	74	88	80	80 ¹ / ₃	0	3-4	1-4	0	0	N. W.	2	0	0	29.915	.72	.43	.70	11	
	6	61	66	57	61 ¹ / ₃	1-4	0	0	N.	18	N. E.	14	N.	10	30.137	.61	.32	.47	12	
	7	54	64	59	59	0	0	0	N.	4	N.	5	0	0	30.136	.55	.34	.70	6	
	8	54	68	63	61 ¹ / ₃	3-4	3-4	0	0	0	E.	6	S. E.	2	30.116	.74	.56	.67	12	
	9	55	77	69	67	0	1-2	1-2	S. E.	1	S. E.	7	S. E.	2	30.129	.81	.61	.75	10	
	10	64	79	69	70 ² / ₃	0	3-4	0	0	0	E.	5	0	0	30.178	.78	.47	.75	2	
	11	65	87	75	75 ² / ₃	4-4	1-2	0	0	0	N. W.	8	0	0	30.184	.78	.45	.68	3	
	12	66	74	65	68 ¹ / ₃	0	0	0	0	0	N. E.	10	N. E.	1	30.217	.54	.29	.49	8	
	13	57	73	61	63 ¹ / ₃	0	0	0	N. E.	1	E.	2	E.	5	30.163	.63	.24	.71	7	
	14	56	74	65	65	0	0	0	0	0	E.	10	S. E.	4	30.136	.69	.36	.68	7	
	15	62	79	73	71 ¹ / ₃	3-4	1-2	1-4	S. E.	1	S. E.	10	S. E.	4	30.277	.72	.51	.63	8	
	16	70	77	73	73 ¹ / ₃	.05	4-4	4-4	1-2	S. E.	2	S.	4	S. E.	1	30.190	.90	.77	.81	5
	17	69	80	75	74 ² / ₃	.01	1-2	3-4	4-4	S. E.	4	S. W.	8	S. E.	8	30.040	.80	.87	.78	7
	18	67	70	59	65 ¹ / ₃	1.17	4-4	1-2	1-4	N.	12	N.	8	N.	14	30.106	.95	.53	.70	2
	19	50	60	52	54	0	0	0	N.	5	N.	18	N. W.	2	30.253	.65	.29	.60	7	
	20	46	70	56	57 ¹ / ₃	0	0	0	W.	2	N. W.	7	N. E.	2	30.073	.77	.36	.81	5	
	21	49	71	65	61 ¹ / ₃	0	1-2	0	S. E.	2	S.	18	S.	7	29.860	.78	.49	.63	3	
	22	63	68	50	60 ¹ / ₃	1.00	4-4	4-4	4-4	S. E.	2	S. W.	13	N. W.	7	29.969	.89	.95	1.00	4
	23	41	49	47	45 ¹ / ₃	1.06	4-4	0	0	N.	8	N. E.	8	N. E.	4	30.193	.91	.93	.85	6
	24	39	53	48	46 ¹ / ₃	.01	1-4	1-4	4-4	N. E.	4	S. E.	4	E.	6	30.246	.91	.80	1.00	3
	25	48	62	63	57 ² / ₃	.85	4-4	4-4	4-4	E.	5	S. E.	4	S. E.	4	30.133	1.00	.83	.94	2
	26	68	78	61	69	4-4	4-4	4-4	N. W.	5	S. W.	5	N. W.	12	29.936	1.00	.91	.77	5	
	27	45	60	54	53	3-4	1-4	0	N. W.	4	N.	5	S. W.	4	30.088	.84	.39	.61	5	
	28	37	47	40	41 ¹ / ₃	0	0	0	N.	7	N. W.	19	N. W.	8	30.454	.62	.28	.56	4	
	29	33	55	47	45	0	0	0	S. W.	4	S. W.	2	S.	4	30.376	.89	.62	.48	3	
	30	42	67	53	54	0	0	0	S. W.	4	W.	10	N.	1	30.170	.74	.60	.86	3	
	31	45	57	47	49 ² / ₃	0	0	0	N.	8	N. E.	10	N. E.	4	30.341	.61	.31	.62	4	

REMARKS.—Extremes of temperature: Highest at 2 p. m., 88°, on the 4th; lowest, 47°, on the 28th; mean for the month, 62.68. Variable winds; fluctuating barometer; thunder-storm on the 26th of the month; greatest force of the wind sixty miles an hour. *Yellow fever*: An abatement of the yellow fever, as shown by mortality, was noticed about the middle of September and continued through this month, making a difference of 210 in deaths. Total deaths from yellow fever for November, 196.

Table showing the Meteorological Conditions observed at Shreveport, La., during the Yellow-Fever Epidemic of 1873—Continued.

Day of month.	Thermometer in the open air.				Rain fall, inches.	Amount of cloudiness.			Winds.						Barometer reduced to freezing-point.	Relative humidity or fraction of saturation.			Deaths from yellow fever.
	7 a. m.	2 p. m.	9 p. m.	Mean.		7 a. m.	2 p. m.	9 p. m.	7 a. m.		2 p. m.		9 p. m.			Mean.	7 a. m.	2 p. m.		9 p. m.
									Direction.	Force.	Direction.	Force.	Direction.	Force.					
Nov. 1	44	66	58	56	...	1-2	3-4	4-4	E.	4	S.	5	S. E.	1	30.313	.60	.59	.70	1
2	53	56	53	55½	1.18	3-4	4-4	4-4	N. E.	5	S. E.	2	N.	6	30.162	.80	1.00	1.00	...
3	54	57	54	55	.25	4-4	4-4	4-4	N. E.	2	N. E.	3	N. E.	6	30.182	1.00	.87	.93	2
4	54	60	58	57½	.32	4-4	4-4	4-4	N. E.	6	N. W.	2	N. W.	2	30.074	1.00	.88	.94	1
5	56	60	58	58	.07	4-4	4-4	4-4	N. W.	4	0	0	N.	4	30.106	1.00	.88	.94	1
6	55	68	61	61½	...	3-4	3-4	0	N. W.	6	N.	2	0	0	30.042	.93	.65	.88	2
7	51	73	62	62	...	0	0	0	W.	2	S. W.	6	W.	2	30.016	1.00	.46	.77	...
8	55	71	53	60½	...	0	0	0	N.	4	N. W.	1	N.	4	30.230	.80	.37	.81	2
9	47	74	60	60½	...	0	0	0	0	0	W.	2	0	0	30.224	.92	.29	.65	...
10	51	78	66	65	...	0	0	0	0	0	W.	5	S.	8	30.116	.86	.29	.50	1
11	56	79	62	65½	...	1-4	0	0	S. W.	7	S. W.	8	N. W.	4	30.000	.69	.35	.46	...
12	47	54	48	42½	...	1-4	0	0	N. W.	13	N. W.	16	N. W.	4	31.271	.48	.32	.36	...
13	35	59	50	43	...	0	0	0	0	0	S. W.	4	S. W.	7	30.179	.70	.47	.80	...
14	42	67	53	55½	...	1-4	3-4	3-4	S.	2	S.	1	S.	4	30.171	.74	.33	.58	...
15	55	69	64	62½	...	3-4	4-4	4-4	S.	4	S. W.	6	S.	6	30.135	.87	.65	.83	...
16	63	74	66	68½	...	4-4	1-2	0	S. W.	5	S. W.	8	N. W.	30	29.966	.99	.59	.19	...
17	51	73	68	64	...	1-2	0	1-4	N. W.	6	N. W.	20	S. W.	4	29.623	.52	.17	.22	...
18	53	58	48	53	...	3-4	0	3-4	N. W.	2	N. W.	30	N.	20	30.033	.67	.26	.51	...
19	54	53	58	55	...	0	0	0	N. W.	1	N. W.	13	0	0	30.271	.45	.24	.64	...
20	35	60	53	49½	.05	0	3-4	4-4	S. E.	2	S.	5	S.	4	30.179	.70	.20	.73	...
21	49	64	61	58	8.50	4-4	3-4	4-4	E.	2	S. E.	2	S. E.	6	31.135	.92	.67	.77	...
22	60	66	64	63½	3.85	4-4	4-4	4-4	S. E.	4	S. E.	2	N. E.	2	29.853	.94	.84	1.00	...
23	62	62	59	61	...	4-4	4-4	4-4	N. E.	10	E.	11	N.	4	29.808	.88	.94	.94	...
24	47	50	48	48½	...	4-4	4-4	0	N.	11	N. W.	5	W.	4	30.119	.92	.72	.85	...
25	66	63	55	61½	...	1-4	3-4	1-2	W.	4	N. W.	11	0	0	30.168	.69	.33	.50	...
26	45	63	55	54½	...	3-4	3-4	1-2	S. E.	2	S.	6	S.	12	29.930	.76	.47	.65	...
27	52	63	57	57½	...	4-4	1-2	4-4	S.	5	S.	1	0	0	29.935	1.00	.67	.81	...
28	45	46	45	45½	...	4-4	4-4	4-4	N. E.	11	N. E.	5	E.	4	30.345	.53	.47	.53	...
29	40	50	53	50½	...	4-4	0	1-2	E.	0	S. E.	4	S. E.	2	30.355	1.00	.48	.73	...
30	51	70	63	61½	...	0	4-4	1-4	S.	6	S.	6	S.	8	30.275	1.00	.61	.78	...

REMARKS.—Mean temperature for the month, 57.45°; highest at 2 p. m., 79°, on the 11th; lowest, 46°, on the 28th; first frost, night of the 12th and 13th. *Yellow fever*: Yellow fever continued to abate, until the 10th of the month, when the last death occurred; total deaths from yellow fever for the month, 10.

TABLE OF THE METEOROLOGICAL CONDITIONS OBSERVED AT MEMPHIS, TENN.

Compiled from the Reports of the Signal-Service, U. S. A., for Comparison

[MEMPHIS: County of Shelby, State of Tennessee; latitude 35° 07' north;

1872.	Thermometer.				Rain-fall, inches.	Amount of cloudiness.*						Wind.						Barometer.†	Humidity, per cent.		
	7.35 a. m.	4.35 p. m.	11 p. m.	Mean.		7.35 a. m.		4.35 p. m.		11 p. m.		7.35 a. m.		4.35 p. m.		11 p. m.					
						Lower.	Upper.	Lower.	Upper.	Lower.	Upper.	Direction.	Velocity.	Direction.	Velocity.	Direction.	Velocity.				
Aug.																Mean.					
1	72	89	...	80.50	...	0	2-4	0	2-4	...	...	N. W.	6	N. W.	4	...	30.07	.85	.56	...
2	76	85	77	79.66	...	0	1-4	0	1-4	2-4	0	N. E.	5	N. W.	11	N. W.	30.09	.72	.46	.64	
3	73	81	70	74.66	...	0	0	0	1-4	0	0	N. E.	4	N. W.	11	N. E.	30.11	.71	.44	.65	
4	...	82	71	76.50	...	...	...	...	2-4	0	0	...	...	N. W.	10	N. E.	30.16	...	.45	.70
5	69	70	90	76.33	...	0	1-4	0	1-4	0	0	N.	4	N.	6	N.	30.15	.70	.50	.76	
6	74	88	78	80.00	...	0	0	0	2-4	0	0	N. E.	...	N. E.	4	N. E.	30.14	.76	.52	.77	
7	78	90	85	84.33	...	0	1-4	0	2-4	1-4	0	N. E.	...	N. E.	...	N. E.	30.11	.73	.47	.77	
8	80	82	78	82.00	...	1-4	0	0	2-4	0	0	S. E.	...	E.	...	S. W.	30.10	.74	.55	.77	
9	78	94	75	82.33	...	0	1-4	0	1-4	4-4	...	S. E.	...	S. E.	...	E.	30.10	.77	.40	.81	
10	77	90	80	82.33	...	0	2-4	0	...	1-4	0	0	...	S. W.	...	0	30.05	.73	.44	.78	
11	80	93	83	85.33	...	0	0	0	2-4	1-4	0	S. E.	...	S. E.	...	S. E.	30.05	.78	.48	.71	
12	81	78	76	78.33	...	1-4	0	2-4	1-4	3-4	0	S. W.	...	S. E.	...	0	30.06	.78	.77	.87	
13	77	85	79	80.33	...	0	1-4	2-4	1-4	1-4	2-4	S. E.	...	N. W.	...	W.	30.06	.81	.68	.32	
14	70	88	79	82.00	...	0	2-4	0	1-4	0	0	W.	10	N. W.	...	N. E.	30.02	.82	.46	.74	
15	75	85	76	78.66	...	0	0	0	4-4	0	0	N.	...	N. W.	...	N. W.	30.07	.68	.41	.81	
16	74	88	77	79.66	...	0	0	0	2-4	0	0	0	...	N. W.	...	0	30.05	.81	.37	.64	
17	75	91	78	81.33	...	0	0	0	1-4	0	0	S. W.	1	S. E.	4	0	30.07	.68	.36	.60	
18	78	92	80	83.33	...	0	1-4	0	1-4	0	0	S. E.	1	N. E.	5	0	30.12	.65	.37	.70	
19	78	93	82	84.33	...	0	0	0	1-4	0	0	S.	1	S. E.	4	S. E.	30.18	.77	.49	.66	
20	80	93	82	85.00	...	0	0	0	2-4	0	0	0	0	E.	2	0	30.20	.76	.43	.70	
21	81	93	83	85.66	...	0	0	0	2-4	1-4	0	0	0	0	0	0	30.22	.70	.43	.75	
22	80	94	84	86.00	...	S.	2-4	0	1-4	0	1-4	0	0	N. W.	4	0	30.17	.78	.40	.67	
23	82	94	82	86.00	...	0	0	0	2-4	1-4	1-4	0	0	0	0	N. E.	1	30.03	.74	.40	.50
24	78	96	84	86.00	...	0	0	0	1-4	1-4	0	N. E.	1	S. W.	5	S. W.	29.96	.69	.39	.64	
25	83	98	87	89.33	...	0	1-4	0	1-4	1-4	0	0	0	N. W.	4	0	30.02	.67	.38	.65	
26	82	97	84	89.33	...	0	1-4	1-4	1-4	2-4	0	S. E.	1	N. E.	4	S.	30.06	.70	.37	.64	
27	80	93	82	85.00	.54	0	2-4	1-4	2-4	1-4	0	S.	1	W.	4	0	30.02	.78	.45	.74	
28	80	95	84	86.33	...	S.	1-4	0	1-4	1-4	0	S.	1	W.	6	S. W.	29.97	.78	.44	.71	
29	79	87	64	76.66	...	0	2-4	0	2-4	2-4	0	N. W.	4	N. W.	12	N. E.	29.92	.77	.58	.67	
30	68	80	66	71.33	...	0	1-4	0	1-4	1-4	0	N.	6	N. E.	10	N. E.	30.08	.74	.30	.58	
31	62	78	66	68.66	...	1-4	2-4	0	1-4	1-4	0	N. E.	4	N. E.	8	N. E.	30.09	.66	.29	.58	

Sept.																					
1	60	83	69	70.66	...	0	0	0	0	0	0	N. E.	3	N. E.	6	N.	4	30.17	.59	.21	.65
2	64	85	73	74.00	...	0	0	0	1-4	1-4	0	E.	1	N. W.	8	N.	1	30.16	.67	.32	.58
3	65	87	75	75.66	...	0	0	0	1-4	1-4	0	E.	1	N. W.	6	0	0	30.10	.73	.27	.63
4	69	89	75	77.66	...	0	1-4	0	0	0	0	0	0	S. W.	8	0	0	30.01	.84	.32	.59
5	69	91	79	79.66	...	S.	H.	S.	H.	0	0	S. W.	1	S. W.	10	S.	4	29.96	.70	.39	.78
6	74	92	79	81.66	...	0	0	0	2-4	0	0	S.	5	S. W.	9	S.	3	30.01	.67	.37	.58
7	75	93	82	83.33	...	1-4	0	0	1-4	0	0	S.	1	S.	6	S. W.	1	30.04	.68	.40	.59
8	76	93	80	83.00	...	0	0	0	1-4	0	0	S.	2	S. W.	10	S.	3	29.99	.68	.40	.62
9	76	89	76	80.33	...	0	1-4	0	2-4	0	0	S.	4	S. W.	7	S.	2	30.02	.68	.46	.68
10	71	91	81	81.00	...	S.	0	0	1-4	1-4	1-4	0	0	W.	4	S. E.	6	30.02	.71	.36	.67
11	76	...	...	76.00	1.10	0	2-4	...	...	...	...	N.	1	...	...	...	...	30.02	.72	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	59	74	65	66.00	...	0	0	0	0	0	0	N. W.	5	N. W.	10	N.	4	30.20	.87	.39	.63
14	60	75	65	66.66	...	0	0	0	0	0	0	N.	4	W.	12	N. W.	4	30.20	.70	.36	.63
15	60	77	63	67.66	...	0	0	0	0	0	0	0	0	W.	8	N.	1	30.13	.70	.41	.63
16	60	79	71	70.00	...	S.	0	0	2-4	0	2-4	N. W.	1	N. W.	8	N.	8	30.07	.82	.40	.66
17	60	77	65	67.33	...	0	1-4	0	0	0	0	N. E.	1	N. E.	6	0	0	30.08	.65	.31	.63
18	58	84	75	72.33	...	S.	1-4	0	0	0	0	0	0	S. W.	5	S. W.	6	29.98	.77	.40	.63
19	61	74	61	65.33	...	0	0	0	0	0	0	N.	5	N. E.	4	N. E.	2	30.11	.60	.32	.65
20	58	86	77	73.66	...	H.	2-4	0	2-4	0	0	S. E.	6	S. W.	6	S.	1	30.07	.64	.41	.77
21	72	89	79	80.00	...	H.	H.	0	H.	0	0	0	0	S. W.	6	S.	2	30.05	.71	.40	.61
22	72	89	79	80.00	...	2-4	1-4	0	2-4	1-4	2-4	S.	4	S. W.	8	S. E.	6	30.06	.75	.46	.58
23	70	87	76	77.66	...	1-4	2-4	0	2-4	1-4	2-4	S.	5	S.	8	S.	2	30.03	.79	.42	.64
24	75	87	83	81.66	...	2-4	1-4	2-4	1-4	0	4-4	S.	8	S.	12	S.	12	29.95	...	...	...
25	61	70	60	63.66	1.88	4-4	0	4-4	...	4-4	...	N.	8	S.	7	N. E.	4	30.13	.76	.55	.60
26	61	75	63	66.33	.33	4-4	...	3-4	...	3-4	...	S. E.	4	N.	6	S. W.	4	29.99	.76	.44	.70
27	56	77	66	66.33	...	1-4	0	0	1-4	4-4	...	N. E.	4	N. E.	6	E.	8	30.01	.88	.51	.72
28	70	73	67	66.66	.31	4-4	...	0	3-4	1-4	0	S.	8	S. W.	16	W.	8	29.87	.80	.31	.63
29	61	73	61	65.00	...	1-4	0	1-4	2-4	1-4	0	W.	2	W.	8	N. W.	2	30.14	.84	.80	.69
30	55	67	57	59.66	...	0	0	0	2-4	1-4	0	N. W.	6	N. W.	10	0	0	30.17	.76	.31	.71

* The letters "F," "H," and "S," indicate foggy, hazy, and smoky, respectively.

† The barometer-readings here given, and in the subsequent tables, are at the temperature given for the corresponding days, and not, as in the preceding tables, reduced to freezing-point.

DURING THE AUGUSTS, SEPTEMBERS, OCTOBERS, AND NOVEMBERS OF 1872 AND 1873.

of Conditions during the Absence and the Prevalence of Yellow Fever.

[longitude 90° 07' west; height above the sea-level, 260 feet.]

1873.	Thermometer.				Rain-fall, inches.	Amount of cloudiness.						Wind.						Barometer.	Humidity, per cent.		
	7.35 a. m.	4.35 p. m.	11 p. m.	Mean.		7.35 a.m.		4.35 p.m.		11 p. m.		7.35 a.m.		4.35 p.m.		11 p. m.			7.35 a. m.	4.35 p. m.	11 p. m.
						Lower.	Upper.	Lower.	Upper.	Lower.	Upper.	Direction.	Velocity.	Direction.	Velocity.	Direction.	Velocity.				
Aug.	7.35 a. m.	4.35 p. m.	11 p. m.	Mean.	Rain-fall, inches.	Lower.	Upper.	Lower.	Upper.	Lower.	Upper.	Direction.	Velocity.	Direction.	Velocity.	Direction.	Velocity.	Mean.			
1	70	85	69	74.66	2.94	4-4	...	3-4	1-4	4-4	...	S. W.	5	S. W.	6	S. W.	2	30.06	1.00	.68	.94
2	70	89	79	79.33	...	1-4	1-4	1-4	1-4	1-4	0	S. W.	2	S. W.	6	...	0	30.03	.94	.59	.86
3	82	72	72	77.00	...	...	...	1-4	1-4	0	0	0	0	N.	12	N.	5	30.08	...	.59	.85
4	68	79	69	72.00	...	0	1-4	0	1-4	0	0	N. E.	4	N. W.	10	N. E.	5	30.15	.81	.44	.74
5	69	82	72	74.33	...	0	0	1-4	1-4	0	0	N.	13	N. E.	12	N. E.	3	30.15	.74	.42	.75
6	71	87	76	74.66	...	0	1-4	2-4	1-4	1-4	...	N. E.	13	S. E.	5	S. E.	2	30.08	.75	.51	.81
7	72	81	74	75.66	...	2-4	1-4	2-4	1-4	0	1-4	E.	12	S. W.	5	N. E.	1	30.01	.80	.66	.90
8	75	88	78	80.33	...	0	0	1-4	1-4	0	1-4	S. E.	12	S. W.	5	E.	1	30.00	.85	.52	.77
9	77	91	78	82.00	.63	S.	1-4	1-4	1-4	0	1-4	0	0	N. W.	5	S. E.	1	30.05	.81	.50	.90
10	92	89	86	86.00	.23	...	...	1-4	2-4	2-4	0	6	0	N. W.	6	0	0	30.05	...	.56	.91
11	81	91	82	84.66	...	S.	1-4	1-4	1-4	0	0	E.	4	N.	6	N.	2	29.67	.82	.50	.82
12	79	93	82	84.66	...	1-4	2-4	1-4	1-4	2-4	H.	0	0	W.	5	N. W.	1	29.98	.82	.45	.78
13	78	86	76	80.00	1.09	2-4	2-4	1-4	2-4	1-4	0	S. W.	4	W.	5	N. W.	1	29.96	.86	.68	.90
14	75	85	75	78.33	...	S.	0	1-4	1-4	0	0	N. E.	1	N.	11	0	0	29.96	.76	.41	.76
15	72	87	79	79.33	...	S.	H.	1-4	2-4	1-4	0	N. E.	2	W.	4	S.	2	29.89	.75	.48	.77
16	73	79	74	75.33	...	4-4	...	4-4	...	4-4	...	W.	4	N. W.	11	N.	5	29.92	.90	.77	.85
17	82	74	73	78.00	...	...	...	1-4	1-4	1-4	0	0	...	N. W.	12	N. W.	5	29.98	...	.55	.81
18	71	81	71	74.00	...	S.	0	0	0	0	0	N.	3	N. W.	12	N.	2	30.05	.70	.41	.70
19	69	85	75	76.33	...	H.	1-4	1-4	2-4	1-4	0	N.	3	N.	8	E.	2	30.04	.70	.47	.92
20	71	86	74	77.00	...	S.	2-4	1-4	1-4	1-4	0	N. E.	1	N. W.	6	N.	2	29.93	.70	.31	.72
21	71	88	76	78.33	...	1-4	1-4	1-4	2-4	1-4	0	N. E.	2	E.	7	S.	2	29.98	.75	.67	.72
22	71	86	75	77.33	...	2-4	1-4	2-4	1-4	1-4	0	S. E.	2	N. E.	6	N. W.	1	30.01	.85	.51	.81
23	73	89	79	80.33	...	1-4	1-4	1-4	1-4	1-4	0	E.	1	E.	6	S. E.	1	30.09	.85	.49	.73
24	78	92	81	83.66	...	S.	1-4	H.	2-4	1-4	...	S. E.	1	S. W.	5	0	0	30.09	.86	.48	.67
25	80	92	82	84.66	...	0	0	1-4	1-4	0	0	N. E.	1	W.	4	N.	2	30.09	.78	.45	.83
26	79	94	83	85.33	...	0	1-4	1-4	1-4	0	0	S.	4	S. W.	5	N.	9	29.99	.82	.43	.75
27	77	93	75	81.66	...	2-4	1-4	0	2-4	4-4	...	N.	2	W.	4	S. E.	5	29.96	.86	.43	.81
28	75	88	77	80.00	...	S.	1-4	1-4	1-4	0	0	N.	4	N. W.	12	N. E.	4	29.95	.85	.49	.68
29	72	88	78	79.33	...	S.	1-4	1-4	1-4	1-4	0	N. E.	3	N. W.	8	N.	3	30.01	.80	.46	.69
30	77	92	78	82.33	...	0	0	1-4	1-4	S.	0	N.	1	S. W.	5	0	0	30.09	.77	.54	.69
31	77	93	82	84.00	...	0	0	1-4	1-4	0	0	S. W.	1	S. W.	7	S. W.	6	30.11	.77	.48	.70
Sept.																					
1	89	92	81	84.33	...	1-4	1-4	2-4	1-4	1-4	H.	S. W.	6	S. W.	12	W.	3	29.67	.74	.45	.82
2	78	82	73	77.66	.48	0	1-4	H.	1-4	4-4	...	S. W.	1	N. W.	1	N. W.	7	30.01	.81	.66	.90
3	76	77	76	76.33	.40	2-4	1-4	2-4	1-4	0	1-4	S.	8	S. W.	3	S.	5	29.97	.86	.77	.90
4	76	80	79	81.33	...	H.	...	1-4	2-4	0	2-4	S. W.	6	S.	10	S. W.	5	30.12	.86	.52	.65
5	77	86	76	79.66	...	4-4	...	2-4	1-4	H.	1-4	S. W.	1	N.	9	N. E.	4	30.17	.75	.64	.81
6	74	84	72	76.66	...	S.	1-4	0	2-4	H.	H.	N. E.	3	N. E.	9	N. E.	5	30.20	.74	.84	.72
7	66	...	65	65.50	...	2-4	4-4	1-4	1-4	0	0	N.	3	N. E.	14	N. E.	3	30.26	.78	.54	.78
8	60	77	65	67.33	...	0	1-4	S.	0	0	0	N. E.	6	N.	10	N.	4	30.22	.65	.31	.68
9	63	83	73	73.00	...	0	1-4	1-4	2-4	0	1-4	N. E.	3	N.	10	N. E.	3	30.09	.72	.52	.76
10	69	86	76	77.00	...	2-4	1-4	2-4	1-4	0	0	S. E.	1	N.	4	0	0	30.07	.84	.44	.77
11	72	86	76	78.00	...	S.	1-4	1-4	1-4	1-4	0	S.	1	W.	5	0	0	30.05	.72	.48	.77
12	77	83	70	76.66	...	0	1-4	4-4	...	4-4	...	S. W.	2	S. W.	11	N.	13	29.96	.68	.52	.75
13	67	71	58	65.33	.10	4-4	...	1-4	2-4	0	0	N. E.	4	N.	14	N.	7	30.08	.84	.49	.64
14	53	68	58	59.66	...	S.	0	0	0	0	0	N.	5	N.	8	N.	2	30.14	.73	.42	.69
15	55	76	64	65.00	...	S.	0	S.	0	0	0	E.	2	W.	2	0	0	30.11	.68	.41	.78
16	65	82	71	72.66	...	S.	0	S.	1-4	0	0	0	0	N. W.	8	0	0	30.11	.71	.42	.75
17	66	86	75	75.66	...	S.	1-4	S.	1-4	0	0	0	0	W.	4	S. E.	4	29.99	.83	.41	.55
18	70	85	75	76.66	...	S.	1-4	1-4	1-4	S.	0	0	0	N. W.	6	0	0	29.91	.70	.50	.76
19	63	63	56	62.66	...	4-4	...	S.	1-4	S.	0	N.	13	N.	13	N.	5	30.00	.72	.39	.56
20	53	64	58	58.33	...	1-4	1-4	4-4	...	4-4	...	N. E.	4	N. W.	10	N. E.	2	30.09	.60	.52	.25
21	58	73	65	65.33	...	1-4	2-4	3-4	1-4	4-4	...	N. E.	2	N. W.	9	N. E.	2	30.07	.64	.42	.73
22	65	70	63	66.00	.51	1-4	2-4	4-4	...	1-4	0	W.	3	N.	11	N. E.	3	30.06	.78	.65	.94
23	60	70	61	63.66	...	4-4	...	1-4	1-4	0	0	N. E.	8	N. W.	6	N.	2	29.98	.92	.61	.82
24	53	73	68	65.66	...	F.	...	2-4	1-4	4-4	...	S. E.	3	S. E.	6	S.	4	29.86	.87	.67	.79
25	66	79	74	73.00	...	4-4	...	1-4	2-4	0	0	N.	5	N. W.	6	S.	4	29.93	.89	.65	.81
26	70	87	76	77.66	...	0	0	1-4	1-4	0	0	S.	7	S. W.	8	S. E.	4	29.99	.89	.45	.72
27	72	78	76	75.33	.32	4-4	...	4-4	...	4-4	...	E.	4	S. E.	2	S. W.	4	30.03	.85	.66	.81
28	72	84	71	75.66	.24	...	...	1-4	2-4	4-4	...	S. E.	2	S.	9	N.	9	29.95	.90	.64	.89
29	71	63	59	64.33	1.18	4-4	...	...	...	4-4	...	0	0	N. W.	13	N. W.	9	30.05	.89	.83	.81
30	54	66	56	58.66	...	0	1-4	0	0	0	0	N. E.	8	N.	13	N. E.	7	30.17	.80	.45	.77

Table of Meteorological Conditions observed at Memphis, Tenn., during the Augusts,

1872.	Thermometer.				Rain-fall, inches.	Amount of cloudiness.						Wind.						Humidity per cent.					
						7.35 a.m.		4.35 p.m.		11 p.m.		7.35 a.m.		4.35 p.m.		11 p.m.							
	Oct.	7. 35 a. m.	4. 35 p. m.	11 p. m.		Mean.	Lower.	Upper.	Lower.	Upper.	Lower.	Upper.	Direction.	Velocity.	Direction.	Velocity.	Direction.	Velocity.	Barometer.	Mean.	7. 35 a. m.	4. 35 p. m.	11 p. m.
1	45	71	61	59.00	1-4	0	0	0	0	1-4	0	W.	1	N. W.	4	S. W.	8	30.21	.85	.36	.71		
2	56	78	66	66.66	S.	0	0	0	0	0	0	S.	2	S. W.	5	S.	1	30.14	.74	.42	.73		
3	64	84	73	73.33	0	0	H.	0	0	0	0	S.	4	S. W.	6	S. W.	8	30.00	.76	.40	.71		
4	67	84	71	74.00	F.	0	0	H.	0	0	0	S. W.	4	S. W.	6	S.	4	30.12	.84	.40	.76		
5	65	83	70	72.66	S.	0	0	2-4	1-4	H.	S.	3	S.	3	S.	S.	1	30.02	.73	.42	.71		
6	65	65	63	64.33	1.96	2-4	2-4	4-4	0	0	0	S.	1	N. W.	4	N.	12	30.05	.73	.94	.91		
7	56	70	58	61.33	1-4	1-4	0	1-4	0	0	0	N. E.	5	N.	8	N.	2	30.13	.87	.65	.89		
8	53	72	58	61.00	0	1-4	0	0	1-4	0	0	N. E.	4	N. E.	8	0	0	30.13	.79	.34	.81		
9	52	76	63	63.66	S.	0	0	2-4	S.	2-4	N. E.	4	N. W.	4	N. W.	2	30.13	.86	.41	.88			
10	53	58	46	52.33	0	0	S.	0	0	0	W.	16	N.	16	N.	4	30.31	.55	.42	.54			
11	42	59	48	49.66	S.	0	0	0	0	S.	0	N.	4	N. W.	8	N.	1	30.29	.66	.43	.77		
12	38	65	53	52.00	S.	0	0	0	0	0	0	N.	1	S. W.	8	S. W.	4	30.11	.90	.38	.66		
13	51	67	56	58.00	S.	0	H.	0	0	0	0	N. W.	8	N. W.	8	N. W.	8	30.09	.72	.28	.51		
14	42	55	44	47.00	S.	0	H.	0	S.	0	0	N. W.	8	N. W.	4	N.	2	30.22	.66	.33	.75		
15	43	68	61	57.33	S.	0	4-4	0	0	2-4	S.	8	S.	12	S. W.	12	30.02	.66	.38	.45			
16	59	70	64	64.33	1-4	2-4	H.	4-4	1-4	2-4	S.	12	S. W.	6	S.	4	30.12	.64	.61	.78			
17	59	75	63	65.66	2-4	2-4	H.	1-4	S.	0	S.	1	S. W.	4	S. W.	1	30.21	.81	.51	.83			
18	53	71	55	59.66	F.	0	H.	0	S.	0	W.	4	N. W.	8	0	0	30.25	.93	.29	.71			
19	47	71	55	57.66	F.	0	0	0	S.	0	N. W.	1	N.	3	0	0	30.24	.92	.25	.74			
20	49	73	56	59.33	F.	0	0	2-4	0	1-4	0	0	N.	2	0	0	30.14	.85	.31	.68			
21	53	74	65	64.00	.02	S.	4-4	1-4	2-4	4-4	E.	3	S.	4	S. E.	12	30.06	.66	.51	.89			
22	63	64	54	60.33	.71	4-4	4-4	4-4	4-4	4-4	N.	2	N. E.	8	N.	12	30.14	.94	.94	.86			
23	51	58	51	53.33	.05	4-4	4-4	4-4	1-4	1-4	N.	2	N.	12	N. E.	5	30.29	.85	.69	.72			
24	46	63	55	54.66	S.	2-4	0	2-4	1-4	0	N.	4	N.	7	N.	4	30.24	.76	.51	.68			
25	48	64	53	55.00	S.	0	0	2-4	S.	0	N. W.	4	N. W.	5	N. E.	3	30.14	.85	.57	.86			
26	45	67	53	55.00	0	0	0	0	0	0	0	0	N. W.	2	0	0	30.07	1.00	.41	.79			
27	47	70	56	57.66	S.	0	0	H.	S.	0	0	6	S. W.	2	0	0	30.07	.84	.48	.80			
28	49	72	60	60.33	S.	0	0	0	1-4	0	N. E.	1	E.	5	E.	8	30.14	.78	.34	.44			
29	56	66	65	62.33	2-4	2-4	4-4	4-4	2-4	0	S. E.	5	S. E.	12	S. E.	8	30.09	.51	.45	.53			
30	56	61	49	55.33	.27	4-4	0	1-4	S.	0	S.	4	N. W.	8	N. W.	1	30.18	.93	.40	.73			
31	38	61	51	50.00	F.	0	0	1-4	S.	0	0	0	N. E.	3	0	0	30.24	1.00	.30	.65			
Nov.																							
1	42	62	52	55.33	S.	1-4	2-4	2-4	2-4	0	E.	2	S.	3	S. W.	2	30.14	.82	.62	.86			
2	47	62	50	53.00	1-4	H.	0	0	S.	0	W.	8	W.	6	S. W.	2	30.09	.84	.22	.64			
3	41	65	55	53.66	S.	H.	0	H.	0	0	N. E.	6	E.	4	S. E.	4	30.13	.65	.35	.56			
4	51	62	64	59.00	S.	2-4	4-4	4-4	4-4	4-4	S. E.	4	E.	4	S. E.	12	30.00	.65	.51	.43			
5	54	57	47	52.66	.03	4-4	4-4	4-4	S.	S.	S.	4	N. W.	8	N.	4	30.12	.86	.75	.84			
6	43	47	47	45.66	.21	4-4	4-4	4-4	4-4	4-4	N.	1	N.	8	N.	8	30.16	.75	.77	.69			
7	41	57	52	50.00	0	4-4	1-4	H.	4-4	4-4	0	0	S. W.	2	0	0	30.11	.91	.54	.66			
8	47	60	55	54.00	4-4	4-4	1-4	3-4	4-4	4-4	N. E.	3	N. E.	8	N. E.	3	30.03	.77	.44	.50			
9	50	65	53	56.00	.01	1-4	0	0	1-4	S.	1-4	N. E.	8	N. E.	4	N. E.	5	29.02	.51	.48	.43		
10	51	58	56	55.00	4-4	4-4	4-4	4-4	4-4	4-4	S. E.	4	S. W.	4	S.	4	30.00	.92	.58	.56			
11	55	65	52	57.33	.35	4-4	1-4	3-4	4-4	4-4	S. W.	3	S. E.	2	N.	12	30.07	.86	.63	1.00			
12	43	55	51	49.66	1-4	0	0	2-4	4-4	4-4	N.	4	S. E.	16	E.	6	30.07	.83	.30	.59			
13	51	58	44	51.00	4-4	0	0	0	0	0	S.	8	N. W.	10	N. W.	16	29.97	.85	.31	.37			
14	31	39	31	33.66	0	0	H.	0	0	1-4	W.	8	N. W.	12	W.	6	30.30	.88	.34	.58			
15	26	36	31	31.00	2-4	1-4	0	2-4	0	0	W.	5	W.	14	S. W.	8	30.03	.75	.55	.58			
16	27	34	29	30.00	S.	2-4	S.	0	S.	0	W.	8	N. W.	4	N.	2	30.15	.52	.34	.52			
17	21	36	33	30.00	S.	1-4	0	2-4	S.	1-4	0	W.	3	0	0	0	30.29	.71	.46	.80			
18	27	40	33	33.33	F.	H.	S.	H.	S.	0	S. W.	1	S.	8	S.	3	30.42	.76	.39	.59			
19	33	52	47	44.00	S.	2-4	S.	3-4	4-4	4-4	S.	6	N. E.	7	N.	8	30.17	.51	.29	.41			
20	26	35	29	30.00	S.	0	0	1-4	0	1-4	N.	8	N. E.	3	S. E.	6	30.30	.63	.35	.41			
21	29	46	40	38.33	.01	S.	1-4	4-4	S.	0	S.	4	S. W.	4	S. W.	4	30.06	.55	.69	.55			
22	34	51	41	42.00	S.	0	0	0	0	0	W.	4	S. W.	4	S.	5	30.58	.71	.33	.56			
23	36	57	47	46.66	S.	0	H.	1-4	0	0	S.	5	S. E.	12	S. E.	4	30.23	.70	.30	.34			
24	48	65	61	58.00	4-4	4-4	3-4	1-4	4-4	4-4	S.	8	S.	13	S.	2	30.07	.63	.53	.65			
25	47	40	39	42.00	.90	4-4	4-4	4-4	2-4	2-4	N. W.	14	N. E.	2	N. E.	8	30.12	1.00	.82	.90			
26	40	48	41	43.00	4-4	S.	H.	S.	0	0	N.	3	N. E.	5	0	0	30.17	.64	.56	.73			
27	34	43	31	36.00	F.	0	0	0	0	0	N.	8	N. E.	5	N. E.	4	30.43	.61	.21	.38			
28	26	37	31	31.50	S.	H.	0	0	S.	H.	N. W.	1	N.	7	N. W.	8	30.47	.63	.39	.39			
29	18	26	23	22.33	0	0	0	2-4	S.	H.	N. W.	12	W.	7	N.	3	30.67	.52	.34	.46			
30	20	34	34	29.33	S.	1-4	S.	1-4	4-4	4-4	S.	2	S.	6	S.	14	30.25	.70	.34	.43			

Septembers, Octobers, and Novembers of the years 1872 and 1873—Continued.

		Thermometer.				Rain-fall, inches.	Amount of cloudiness.						Wind.						Barometer.	Humidity, per cent.		
1873.	Oct.	7.35 a. m.	4.35 p. m.	11 p. m.	Mean.		7.35 a.m.		4.35 p.m.		11 p. m.		7.35 a.m.		4.35 p.m.		11 p. m.			7.35 a. m.	4.35 p. m.	11 p. m.
							Lower.	Upper.	Lower.	Upper.	Lower.	Upper.	Direction.	Velocity.	Direction.	Velocity.	Direction.	Velocity.					Mean.
1	...	53	69	63	61.66	...	0	2-4	3-4	1-4	2-4	2-4	N.	6	N.E.	8	N.	4	30.10	.73	.56	.77
2	...	63	73	65	67.00	...	4-4	...	2-4	2-4	0	0	E.	12	N.E.	12	N.E.	2	30.09	.77	.71	.94
3	...	62	...	70	66.00	...	0	1-4	1-4	1-4	0	2-4	E.	12	S.W.	5	S.	2	30.03	.82	.54	.79
4	...	70	76	66	70.66	...	0	2-4	0	1-4	0	0	S.W.	4	N.W.	10	N.	12	29.94	.79	.64	.81
5	...	63	...	63	63.00	...	S.	2-4	...	...	4-4	...	E.	1	...	1	...	18	29.96	.77	...	.67
6	...	46	56	47	49.66	.04	2-4	1-4	0	1-4	0	0	N.	12	N.	16	N.	5	30.16	.69	.39	.62
7	*	42	59	50	50.33	...	0	0	S.	0	0	0	N.	7	N.	6	N.	2	30.13	.75	.45	.64
8	...	46	69	56	57.00	...	0	0	S.	1-4	S.	0	E.	4	N.W.	4	N.W.	1	30.12	.69	.42	.23
9	...	52	68	60	60.00	...	S.	0	S.	0	S.	0	0	N.W.	5	S.W.	1	30.12	.79	.43	.76	
10	...	52	76	64	64.00	...	0	0	S.	2-4	S.	1-4	E.	2	N.W.	6	S.W.	1	30.11	.79	.56	.83
11	...	60	77	65	67.33	...	0	1-4	1-4	2-4	0	0	S.W.	3	N.W.	1	N.	6	30.13	.88	.60	.78
12	...	54	66	55	58.33	...	0	0	S.	1-4	0	0	N.W.	7	N.W.	10	N.	1	30.20	.73	.38	.62
13	...	46	69	54	56.33	...	F.	0	S.	0	S.	0	E.	2	N.W.	3	W.	18	30.17	.61	.35	.67
14	...	46	74	61	60.33	...	S.	0	S.	0	S.	0	E.	1	E.	7	0	0	30.24	.69	.28	.65
15	...	57	...	66	61.50	...	0	1-4	1-4	2-4	1-4	0	S.E.	3	S.E.	8	S.W.	1	30.28	.75	.44	.73
16	...	67	80	70	72.33	...	1-4	2-4	1-4	2-4	0	0	S.	6	S.	5	S.E.	4	30.26	.74	.54	.70
17	...	64	79	72	71.66	...	1-4	2-4	1-4	2-4	1-4	...	S.	3	S.W.	10	S.E.	5	30.05	.78	.54	.66
18	...	55	57	52	54.66	1.76	4-4	...	4-4	...	1-4	0	N.W.	16	N.	12	N.	5	30.09	.93	.75	.86
19	...	46	56	47	49.66	...	0	1-4	0	1-4	1-4	0	N.	6	N.W.	12	N.	3	30.17	.76	.34	.69
20	...	44	55	46	48.33	...	0	0	S.	0	0	0	N.W.	4	N.W.	11	0	0	30.07	.85	.33	.76
21	...	40	63	56	53.00	...	S.	0	S.	0	0	0	W.	1	S.W.	6	S.	6	29.91	.73	.42	.62
22	...	58	68	57	61.00	1.12	1-4	2-4	4-4	...	4-4	...	S.	8	S.	8	N.W.	10	29.92	.81	.84	.87
23	...	40	40	36	38.66	1.09	4-4	...	4-4	...	0	0	N.	8	N.	10	N.	5	30.23	.91	.82	.90
24	...	38	55	47	46.66	...	4-4	...	S.	2-4	2-4	0	N.	5	N.	5	N.E.	2	30.29	.79	.62	.77
25	...	46	52	52	50.00	...	4-4	...	4-4	...	4-4	...	N.E.	1	N.E.	4	E.	3	30.23	.92	.86	.93
26	...	57	65	...	61.00	1.04	4-4	...	4-4	...	...	...	S.	12	S.W.	5	...	...	29.85	1.00	.94	...
27	...	38	56	50	48.00	...	4-4	...	S.	1-4	2-4	0	W.	4	S.W.	11	N.W.	16	29.97	.81	.39	.58
28	...	32	41	34	33.66	...	0	0	0	1-4	0	0	W.	2	N.W.	8	N.W.	2	30.37	.89	.32	.79
29	...	30	48	42	40.00	...	0	0	S.	1-4	S.	1-4	0	0	S.W.	3	S.	2	30.35	.78	.29	.50
30	...	42	58	46	48.66	...	1-4	2-4	S.	1-4	S.	0	S.W.	6	S.W.	6	S.	2	30.11	.57	.37	.76
31	...	36	47	37	40.00	...	0	0	S.	0	S.	0	N.W.	8	N.W.	6	0	0	30.34	.55	.27	.71

Nov.																						
1	*	29	54	47	43.33	...	0	0	S.	1-4	S.	1-4	E.	3	S.E.	5	S.E.	5	30.39	.88	.26	.41
2	...	45	59	47	53.66	...	1-4	1-4	4-4	...	4-4	...	S.	3	S.E.	2	N.W.	10	30.24	.84	.38	.84
3	...	48	58	49	51.66	.01	4-4	...	S.	1-4	S.	1-4	N.E.	4	N.E.	6	N.E.	2	30.24	.85	.47	.63
4	...	46	53	52	50.33	.27	4-4	...	4-4	...	4-4	...	N.E.	1	N.E.	4	N.E.	3	30.11	.76	.93	.95
5	...	53	61	59	57.66	...	4-4	...	4-4	...	4-4	...	N.	3	N.E.	2	N.E.	1	30.12	.93	.76	.59
6	...	52	64	55	57.00	...	4-4	...	3-4	1-4	S.	0	N.	5	N.E.	0	N.E.	1	30.04	.72	.62	.36
7	...	50	68	62	60.00	...	S.	1-4	S.	0	2-4	0	N.W.	1	S.W.	8	N.W.	6	29.96	.92	.51	.61
8	...	48	65	53	53.33	...	S.	0	S.	0	S.	0	N.W.	2	N.	4	S.W.	4	30.18	.48	.26	.60
9	...	46	69	56	57.00	...	S.	0	0	0	S.	0	S.W.	2	W.	2	0	0	30.18	.77	.27	.62
10	...	48	74	59	60.33	...	S.	0	S.	0	S.	0	S.W.	1	S.W.	2	S.E.	2	30.98	.77	.31	.59
11	...	54	75	60	63.00	...	S.	1-4	S.	0	4-4	...	S.W.	6	W.	11	N.W.	12	29.92	.61	.22	.15
12	...	45	46	40	43.66	...	4-4	...	4-4	...	0	0	N.W.	8	W.	8	N.W.	1	30.15	.60	.33	.47
13	...	33	49	42	41.33	...	S.	1-4	S.	0	S.	0	W.	1	S.	8	S.	6	30.16	.69	.24	.42
14	...	38	57	49	48.00	...	S.	0	S.	0	0	0	S.W.	1	N.W.	1	S.	6	30.13	.62	.30	.50
15	...	50	68	64	60.00	...	1-4	2-4	S.	1-4	3-4	0	S.W.	6	S.W.	14	S.W.	8	30.07	.85	.55	.62
16	...	62	...	...	62.00	...	4-4	...	...	...	...	...	S.W.	8	...	...	...	...	29.87	.77	...	...
17	...	60	55	57	57.50	...	...	...	4-4	...	0	H.	...	S.	6	S.W.	3	29.38	...	.34	.50	
18	...	47	43	33	41.00	...	4-4	...	4-4	...	0	0	N.W.	27	N.W.	16	N.W.	20	29.82	.34	.43	.51
19	...	26	36	32	31.33	...	S.	0	S.	H.	0	0	N.W.	4	N.W.	12	W.	1	30.18	.63	.29	.59
20	...	29	45	40	38.00	...	H.	H.	H.	...	H.	0	...	4	S.	5	S.	2	30.20	1.00	.38	.47
21	...	45	55	49	49.66	...	F.	...	4-4	...	4-4	...	S.W.	11	S.	6	S.E.	1	30.21	.49	.62	.78
22	...	49	52	49	50.00	1.80	4-4	...	4-4	...	4-4	...	S.	2	E.	10	S.E.	7	30.02	.92	.93	.92
23	...	53	56	54	54.33	.79	4-4	...	4-4	...	4-4	...	S.E.	5	S.W.	1	N.	9	29.80	.93	.93	1.00
24	...	46	46	43	45.00	...	...	...	1-4	...	0	0	N.W.	2	W.	9	S.W.	9	29.97	.92	.69	.75
25	...	45	50	44	46.33	...	S.	0	S.	0	0	0	W.	9	S.W.	15	N.E.	4	29.74	.45	.38	.52
26	...	37	59	51	49.00	...	S.	0	4-4	0	1-4	...	S.E.	7	S.	10	S.	6	29.93	.71	.43	.52
27	...	44	54	43	47.00	...	S.	0	S.	0	4-4	...	S.W.	1	N.	8	N.E.	10	29.99	.75	.32	.35
28	...	42	35	38	38.50	...	...	...	S.	0	0	1-4	...	N.E.	6	N.E.	5	30.46	...	.31	.53	
29	...	34	45	44	41.00	...	S.	2-4	F.	2-4	0	2-4	N.E.	5	N.E.	...	N.E.	3	30.43	.61	.53	.52
30	...	38	58	57	51.00	...	0	2-4	3-4	2-4	2-4	2-4	E.	3	S.E.	3	S.E.	8	30.37	.81	.64	.81

* Frost during nights of October 6-7, and October 31 and November 1.

The foregoing record of the meteorological conditions observed during the period of the prevalence of the epidemic yellow fever at Memphis and Shreveport in 1873, undoubtedly furnish important facts which are essential to a correct study of the habits and climatic conditions under which this disease exists. Yet we are unable to deduce from them, or to recognize any positive factor or factors that can satisfactorily account for the outbreak and the prevalence, for months, of a specific fever which is very generally believed by physicians to have been imported from New Orleans, where, however, it was not recognized as being epidemic or even extensively prevalent during any part of the summer.

We may here remark, that in the study of this disease as seen in the United States, it is to man himself, and his neglect of the laws governing health and the sanitary conditions of his abode, that we must look for at least some of the exciting causes.

That the disease has limits varying its boundaries during particular seasons, will be readily conceded. One of the limiting causes assigned by most observers, is low temperature. We believe that elevation and a comparatively dry atmosphere may be added.

We ask the question if, from the facts furnished by the different visitations of yellow fever within the United States, elevation is entitled to be credited in any degree with controlling the spread of the disease to interior towns; and if so, does the elevation control it in any other mode than by the effect of a cooler and drier atmosphere than prevails in the low lands in the same vicinity?

Nothing is truer than that man's health is affected by his surroundings. Where a rapid vegetable growth and decay go on, as in the tropical and semi-tropical regions, these localities must always have conditions peculiar to themselves, which influence powerfully both health and disease, although their modes of action may escape our observation.

Humboldt long ago observed that this fever did not exist at high altitudes. A. Keith Johnson, in his valuable *Physical Atlas*, says: "At Xalapa, in Mexico, on the same parallel with Vera Cruz, but 4,330 feet above the sea, yellow fever is unknown." In Jamaica, Maroontown and the Phoenix Park, at an elevation of 2,000 feet, are noted for their healthfulness, while yellow fever rages along the coast, cutting off many hundreds annually. In this island, however, it has been known to exist in a mild form on Stony Hill, elevated 1,360 feet.

Major Tullock, of the British army, remarks that this disease has never been known in any climate at an elevation of 2,500 feet. Mount Desmoulin, near Roseau, in the island of Dominica, 1,500 feet above the sea, is always free from fever, even while it is epidemic at the water-line. The same exemption is observed in the northern and elevated parts of San Domingo, whatever may be the character of the soil.

Dr. Drake, in his work, fixes a limit to this fever in the United States at 400 feet. These figures would seem to be not far out of the way.

This view of the limitation to the spread of yellow fever by elevation has been observed in Cuba and elsewhere.

Fort Smith, in Arkansas, 460 feet above the sea, is the highest point at which this fever has prevailed as an epidemic in the United States. Although Winchester, Va., at an altitude of 700 feet, is placed upon the map, the cases reported to have occurred there in 1802 are not well authenticated. A correspondence with Dr. G. Miller, an old and intelligent physician of that place, was opened to verify the report, but nothing could be learned that would give credibility to the statement. As a faithful chronicler, however, we do not feel at liberty to omit the mention of the disease at this place, with the authority, and the less so since a person *en route* from the South died there shortly after his arrival, in 1871, of what was supposed to be yellow fever. There is much room for doubt, also, as to the correctness of the diagnosis that recognized yellow fever at Gallipolis, in Ohio, in 1796, and in Bald Eagle Valley and Nittany, in Pennsylvania, in 1799.

The cases at Cincinnati in 1871 and 1873 were strangers, reported to have been brought there on boats from New Orleans and Memphis, which renders it probable that they were yellow fever, but contracted before sailing. No new cases occurred at Cincinnati. Those reported at Winchester, Gallipolis, Bald Eagle Valley, Nittany, and other points, not here questioned, may have been only aggravated cases of bilious fevers.

But lest we be misled, and attribute too much influence to elevation, we should not forget the remark of the late Dr. La Roche, who notices how securely a stranger may live in the near vicinity of the epidemic, provided he does not enter the infected district. This fact suggests that the stratum of air, in which the infection peculiar to yellow fever exists, is heavier than air free from the poison, and which therefore seeks the lowest and dampest localities.

If this view should be verified by careful and repeated observations, it would suggest that houses and hospitals, in districts particularly liable to yellow fever, should be built upon columns or supports 10 or 12 feet high, with the space beneath paved and left open for the free circulation of air. The occupants might thus, to some extent, escape breathing the heavier and more noxious stratum of air.

It is clear, as shown by this map, that the disease has, in the United States, never in an epidemic form reached an elevation of 500 feet. If elevation, then, can exempt the inhabitants of a place from such a terribly destructive disease, the profession should, and will, avail itself of this means of protecting life, namely, the removal of all susceptible persons out of the infected district to an elevation above 500 feet if practicable. So far as we could collect facts bearing upon the point in question as to each locality we have done so, and they are given in the following table:

TABLE OF LOCALITIES IN THE UNITED STATES WHERE YELLOW FEVER HAS APPEARED SINCE A. D. 1668.

With their Elevations above the Sea-level; Dates of Commencement and Suspension of the Disease; Mortality; and Authorities for the Statements.

State.	Locality.	Situation.	Elevation, in feet, above sea-level.	DATE OF COM- MENCEMENT.		DATE OF SUS- PENSION.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
Alabama.	Blakely, Baldwin Co.	On Tensaw River.	25	1822					Drake, Principal Diseases of Interior Valley, North America, p. 225.
	Cahawba, Dallas Co.	On Alabama River.	175	1853					E. H. Barton, Report Sanitary Commission of New Orleans, 1857, p. 65.
	Citronelle, Mobile Co.	On Mobile and Ohio Railroad.	65	1853					J. C. Nott, N. O. M. & S. J., 1854, p. 571.
	Dog River Cotton Factory.	Five miles from Mobile	30	1853	Aug. 8				C. Whittledworth, Ch. M. J. & Rev., 1859, p. 479.
	Demopolis, Marengo Co.	On Tombigbee River.	125	1853					E. D. Fennel, History of Epidemic Yellow Fever, 1853, p. 49.
	Fort Claiborne, Monroe Co.	Alabama River.	75	1819	July 4	1819	Dec. 1		Harvey E. Brown, (asst. surg., U. S. A.,) Quarantine, on the southern and Gulf coasts, 1872.
	Fort Morgan Island.	Mobile Bay.	20	1867	Aug. 13				Brown, Quarantine, p. 44.
	Fort Saint Stephens, Wash- ington Co.	Tombigbee River.	75	1819	July 4	1819	Dec. 1		Dowdell, Yellow Fever of 1853, p. 16.
	Fulton, Sumpter Co.	Tombigbee River.	120	1853					N. O. Med. and Surg. Jour., vol. 11, 1854, p. 82.
	Hollywood.	Tombigbee River.	75	1853					E. H. Barton, Report San. Com. of N. O., 1857, p. 65.
	Mobile, Mobile Co.	Mobile Bay.	20	1705					P. H. Lewis, N. O. M. J., 1845, vol. 1, No. 4, p. 283.
				1766					Drake, Dis. Int. Valley of N. A., p. 216.
				1819	Aug. 15		Nov. —	274	P. H. Lewis, N. O. M. J., vol. 1, No. 4, 1845, p. 283.
				1821					P. H. Lewis, N. O. M. J., vol. 1, No. 4, 1845, p. 284.
				1822					Drake, Dis. Int. Valley of N. A., p. 191.
				1824					Do.
				1825	Sept. —				Do.
				1827	Aug. —				Do.
				1828					Drake, Dis. Int. Valley of N. A., p. 191.
				1829	Sept. 14			130	Drake, Dis. Int. Valley of N. A., p. 191.
				1837	Sept. 20	1837	Nov. —	350	Drake, and Brown, Quarantine, 1872.
				1838					Do.
				1839	Aug. 11	1839	Oct. 20	650	J. H. Lewis, N. O. M. J., 1844, p. 31.
				1841					Drake, p. 225, and Brown, Quarantine, 1872.
				1842	Aug. 20			60	Do.
				1843	Aug. 18	1843	Nov. 5	340	Drake, Dis. Int. Valley of N. A., p. 191.
				1844					Brown, Quarantine, and Fennel's South Med. Re- ports, vol. 2, p. 304.
				1847				76	Fennel, South Med. Reports, vol. 2, p. 304.
				1848				75	

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Table of Localities in the United States where Yellow Fever has appeared since A. D. 1668, &c.—Continued.

State.	Locality.	Situation.	Elevation, in feet, above sea-level.	DATE OF COM- MENCEMENT.		DATE OF SUS- PENSION.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
Florida	Milton, Santa Rosa Co. Pensacola, Escambia Co....	On Blackwater River, near Pensacola Bay. On Pensacola Bay.....	20 15	1829	June	—	—	36	C. C. Dupré, <i>Am. J. of Med. Sci.</i> , 1841, p. 380.
				1841	Aug.	—	—	112	Do.
				1853	Aug.	—	—	—	Army Medical Statistics, p. 323.
				1854	—	—	—	—	Ed. N. O. M. & S. J., 1854, p. 423.
				1862	—	—	—	—	Ed. M. and S. Reporter, 1862, p. 513.
				1862	June 20	—	Oct.	71	E. B. Hunt, <i>Med. Reporter</i> , 1864, p. 340.
				1864	—	—	—	—	Brown, <i>Quarantine</i> , p. 40.
				1865	—	—	—	—	Surgeon-General's Office, Circular No. 1, 1868, p. 152.
				1869	—	—	—	—	Brown, <i>Quarantine</i> , p. 41.
				1853	—	—	—	—	Brown, <i>Quarantine</i> , p. 38.
				1855	—	—	—	—	Do.
				1764	—	—	—	—	P. S. Townsend, N. Y. M., and Ph. J., 1823, p. 315.
				1811	—	—	—	125	Drake, <i>Dis. Int. Valley of N. A.</i> , p. 190.
				1811	—	—	—	—	Do.
				1822	Aug. 12	—	Oct. 10	257	Drake, <i>Dis. Int. Valley of N. A.</i> , p. 229.
				1825	—	—	—	—	Brown, <i>Quarantine</i> , p. 36.
				1827	—	—	—	—	Med. Statistics, United States Army, p. 58.
				1834	Aug. 23	—	—	—	Drake, <i>Dis. Int. Valley of N. A.</i> , p. 332.
				1839	—	—	—	—	Drake, <i>Dis. Int. Valley of N. A.</i> , p. 233.
				1841	—	—	—	—	Do.
				1842	—	—	—	—	S. C. Lamason, Maryland M. & S. J., 1843, p. 393.
				1843	—	—	—	—	Dr. Wedderburn, Report of San. Com., p. 125.
				1841	—	—	—	—	Do.
				1845	—	—	—	—	Brown, <i>Quarantine</i> , p. 36.
				1846	—	—	—	—	Do.
				1847	—	—	—	—	Dr. Wedderburn, Report of San. Com., p. 125.
				1848	—	—	—	—	Dr. Wedderburn, Report of San. Com. of N. O., p. 135.
				1853	July 9	—	—	—	E. D. Feiner, <i>Hist. of Yellow Fever, N. O.</i> , 1853, p. 49.
				1854	—	—	—	—	R. B. S. Hargis, N. O. M. N., 1859, p. 727.
				1858	—	—	—	—	Do.
				1863	Aug. 25	—	—	—	B. F. Gibbs, A. J. M. S., 1866, p. 340.
				1867	July 24	—	—	34	M. Reporter, 1868, p. 227.
				1873	Aug. 6	—	—	61	R. F. Michel, Charleston M. J. and R., 1874, vol. 1 No. 4, p. 289.
				1807	—	—	—	—	Brown, <i>Quarantine</i> , p. 32.
				1821	Aug.	—	—	140	J. Gotham, M. Reporter, 1856, p. 564.
				1838	—	—	—	—	C. C. Dupré, A. J. Med. Sci., 1841, p. 384.
				1839	Aug. 15	—	—	—	Do.
	St. Augustine, St. John's Co.	On Matanzas Sound, two miles from the sea.	10	1807	—	—	—	—	

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Table of Localities in the United States where Yellow Fever has appeared since A. D. 1668, &c.—Continued.

Name.	Locality.	Situation.	Elevation, in feet, above sea-level.	DATE OF COM- MENCEMENT.		DATE OF SUSPEN- SION.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
Louisiana.....	Bay of Saint Louis.....	Mouth of the Mississippi River.	10	1820	Aug. —	.....	.....	.....	A. P. Merrill, N. O. M. and S. J., 1851, p. 1.
	Bayou Sara, West Feliciana Parish.	On Mississippi River.....	75	1830	.....	.....	.....	.....	N. O. M. and S. J., 1850, p. 79.
	Barat Settlement, (coast below New Orleans)	On Mississippi River.....	10	1847	.....	.....	.....	.....	E. D. Fenner, N. O. M. and S. J., 1848, p. 19.
	Carrollton, Jefferson Parish.	On Mississippi River.....	15	1853	.....	.....	.....	.....	P. C. Gaillard, Ch. M. J. and Rev., 1853, p. 481.
	Centreville, Saint Mary's Parish.	On Teche River 60 miles from the Gulf of Mexico.	20	1847	May 18	.....	.....	.....	Brown, Quarantine.
	Clinton, East Feliciana Parish.	32 miles N. of Baton Rouge..	85	1855	Sept. —	.....	.....	1	E. D. Fenner, N. O. M. and S. J., 1848, p. 192.
	Cloutierville, Natchitoches Parish.	On Old River, branch of Red River.	175	1855	Sept. 1	.....	.....	1	D. Warren Brickell, N. O. M. N., 1855, p. 167.
	Covington, Saint Tammany Parish.	45 miles north of New Orleans.	25	1853	Sept. —	.....	.....	75	W. B. Wood, N. O. M. N., 1856, p. 483.
	Donaldsonville, Ascension Parish.	On Mississippi River.....	30	1847	.....	.....	.....	.....	B. Dowler, Tableau of Yellow Fever, 1853, p. 28.
	Franklin, Saint Mary's Parish.	On Teche River, 65 miles from the Gulf of Mexico.	15	1827	.....	.....	.....	.....	Brown, Quarantine.
	Gretna.....	On Mississippi River.....	18	1839	.....	.....	.....	.....	Do.
	Iberville, Iberville Parish.	.....	15	1853	Oct. 19	.....	.....	.....	E. D. Fenner, N. O. M. and S. J., 1848, p. 192.
	Jeanerette's, Parish of Saint Mary.	.....	15	1854	.....	.....	.....	.....	Do.
	Jesuit's Bend.....	Settlement on coast below New Orleans.	10	1854	.....	.....	.....	.....	E. D. Fenner, N. O. M. and S. J., 1848, p. 192.
	La Fayette.....	Near New Orleans.....	12	1847	June 22	.....	.....	.....	Drake, Dis. Int. Valley of N. A., p. 247.
	Lake Providence, Carroll Parish.	On Mississippi River.....	100	1853	.....	.....	.....	.....	J. W. Lyman, N. O. M. and S. J., 1854, p. 670.
	Mandeville, Saint Tammany Parish.	On Lake Pontchartrain.....	15	1854	.....	.....	.....	.....	W. B. Wood, N. O. M. N., 1856, p. 483.
	McDonoughville.....	.....	15	1858	.....	.....	.....	.....	N. O. M. J., 1859, p. 506.
	Natchitoches.....	On Red River.....	180	1839	.....	.....	.....	.....	Brown, Quarantine.
	New Iberia, Saint Martin's Parish.	Southern part of Louisiana..	20	1867	.....	.....	.....	.....	Brown, Quarantine.
	.....	.....	.....	1870	.....	.....	.....	.....	N. O. M. J., 1859, p. 506.

Drake, Dis. Int. Valley of N. A., p. 191.
 Drake, Dis. Int. Valley of N. A., p. 241.
 Report New Orleans Board of Health, 1872, p. 68.
 Brown, Quarantine, p. 58.

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On Mississippi River.....

Table of Localities in the United States where Yellow Fever has appeared since A. D. 1663, &c.—Continued.

e.	Locality.	Situation.	Elevation, in feet, above sea-level.	DATE OF COMMENCEMENT.		DATE OF SUSPENSION.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
Louisiana.....	New Orleans.....	On Mississippi River.....	10	1855	June —	.....	Dec. —	2, 670	Chaillé, Va. Med. J., 1856, p. 499.
				1856	Aug. —	.....	Nov. —	74	S. Chaillé, Va. M. J., 1856, p. 499.
				1857	June —	.....	Dec. —	199	Do.
				1858	June —	.....	Oct. 10	3, 889	Ed. Med. Rep., 1858, vol. 1, No. 4, p. 72.
				1862	.....	.....	.....	.....	Reimer, S. J. of M. S., May, 1866.
				1863	.....	.....	.....	.....	Chaillé, p. 8.
				1864	.....	.....	.....	.....	Harris, Sanitary Commission, p. 264.
				1867	June 10	.....	Dec. 22	3, 093	Ed. N. O. M. J., 1868, p. 194.
				1870	May 16	.....	Dec. —	587	J. C. Fuget, N. O. Med. & S. J., vol. 1, No. 2, 1873.
				1871	Aug. 4	.....	Oct. —	55	Report N. O. Board of Health, 1871.
	New Orleans, (small settlement on coast below.) Opelousas, Saint Landry Parish.	On Mississippi River.....	10	1872	Aug. 28	.....	Nov. 30	40	Report N. O. Board of Health, 1872, p. 17.
				1873	July 4	.....	Nov. 18	225	Orsanus Smith, Report Supervising Surgeon, U. S. Marine Hospital Service, 1873.
				1854	.....	.....	.....	.....	D. R. Fox, N. O. M. N., 1855, p. 409.
				1855	.....	.....	.....	.....	Do.
				1829	.....	.....	.....	.....	Carponter, Sketches, p. 26.
				1837	Oct. 20	.....	Nov. —	.....	T. A. Cooke, N. O. M. J., 1846, p. 27; Drake, p. 243.
				1839	Aug. —	.....	Nov. —	.....	Do.
				1842	.....	.....	.....	.....	Do.
				1853	.....	.....	.....	.....	T. A. Cooke, South Med. Rec., vol. 34, 1873, No. 4, p. 199.
				1867	.....	.....	.....	.....	Do.
	Pattersonville, Saint Mary's Parish.	On Tolle River.....	20	1853	Aug. 8	.....	Dec. —	45	J. S. Grant, M. D., Report San. Com., 1853, p. 43.
				1854	Sept. —	.....	.....	.....	W. B. Wood, N. O. M. N., 1856, p. 483.
				1855	Sept. —	.....	.....	.....	Do.
				1837	.....	.....	.....	.....	Do.
				1839	.....	.....	.....	.....	Do.
				1847	.....	.....	.....	.....	Do.
				1853	Sept. —	.....	Oct. —	.....	Drake, Dis. Int. Valley, N. A., p. 191.
				1858	.....	.....	.....	.....	N. O. M. and S. J., 1848, p. 536.
				1854	Oct. —	.....	.....	.....	J. B. Hacker, N. O. M. and S. J., 1854, p. 668.
				.....	.....	.....	.....	.....	S. Chaillé, Va. M. J., 1855, p. 491.
	Point a la Hache, coast below New Orleans. Port Baro.	On Mississippi River.....	8	1854	.....	.....	.....	.....	Brown, Quarantine.
				1870	.....	.....	.....	.....	T. A. Cooke, South Med. Rec., vol. 3, 1873, No. 4, p. 133.
				1839	.....	.....	.....	.....	Do.
				1841	Oct. 13	.....	.....	.....	Drake Dis. Int. Valley, N. A., p. 252.
				1843	.....	.....	.....	.....	Do.
				1841	Drake, Dis. Int. Valley, N. A., p. 191.
				1817	Drake Dis. Int. Valley, N. A., p. 253.
				Do.
				Do.
				Do.

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Table of Localities in the United States where Yellow Fever has appeared since A. D. 1608, &c.—Continued.

State.	Locality.	Situation.	Elevation, in feet, above sea-level.	DATE OF COMMENCEMENT.		DATE OF SUSPENSION.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
Massachusetts	Boston, Suffolk Co.	Head of Massachusetts Bay.	45	1798				200	J. H. Griscom, N. Y. J. M., 1856, p. 369.
				1800					S. Enklen, N. A. M. and S. J., 1824, p. 321.
				1802				60	J. Gotham, Med. Rep., 1856, p. 563.
				1805					J. H. Griscom, Visitation of Yellow Fever, p. 13.
				1819					S. Enklen, N. A. M. and S. J., 1824, p. 321.
	Holliston, Middlesex Co. . . . Nantucket, Nantucket Co. . . . New Bedford, Bristol Co. . . .	Inland, 25 miles from Boston. On an island in the ocean. On Buzzard's Bay.	75	1858				15	F. E. Oliver, B. M. and S. J., 1853, p. 140.
				1741				259	Med. Rep., 1853, p. 107.
				20 1763					Brown, Quarantine, p. 9.
				1800				1801	B. Dwyler, Tableau of Yellow Fever, 1853, p. 11.
				1796					J. H. Griscom, N. Y. J. M., 1856, p. 369.
Mississippi	Newburyport, Essex Co. . . . Salem, Essex Co. . . . Biloxi, Harrison Co. . . .	On Merrimac River. On an inlet of the sea. On Biloxi Bay.	20	1798					J. Gotham, Jr., Med. Rep., 1856, p. 563.
				20 1792					Drake Dis. Int. Valley, N. A., 191.
				1839					Do.
				1847					E. D. Fenner, N. O. M. and S. J., 1848, p. 192.
				1853					J. C. Nott, N. O. M. and S. J., 1854, p. 571.
	Brandon, Rankin Co.	Inland, 12 miles from Jackson, on branch of Pearl River.	300	1853	Sept. 15				S. Chaille, Va. M. J., 1858, p. 491.
				1854	Sept. 23		Nov. 18		Report Sanitary Commission, 1853, p. 77.
				1855					Trans. A. M. A., 22, p. 201.
	Canton, Madison Co.	Inland 25 miles from Jackson, near branch of Pearl River.	320	1854					A. P. Jones, N. O. M. N., 1856, p. 182.
				1853	Aug. 28		Oct. —	13	J. S. Beazley, N. O. M. N., 1856, p. 151.
				1855	Aug. 23				E. McAllister, N. O. M. and S. J., 1854, p. 675.
	Clifton, Jefferson Co. . . . Cooper's Wells, Hinds Co. . . . Grand Gulf, Claiborne Co. . . . Greenwood, Carroll Co. . . . Jackson, Hinds Co.	10 miles from Pearl River. On Mississippi River. On Yazoo River. On Pearl River.	200	1853				9	Trans. A. M. A., 1854, p. 525.
				1853					S. C. Farras, Stethoscope, 1855, p. 584.
				1854					Do.
	Natchez, Adams Co.	On Mississippi River.	150	1817	Sept. —		Nov. 9	90	Drake, Dis. Int. Valley, N. A., p. 263.
				1819	Sept. —		Dec. —	180	Brown, Quarantine, p. 30.
				1823	Aug. 10		Oct. 18	312	H. Twoley, History Yellow Fever, 1823, p. 25.
				1825	Aug. 20		Nov. 1	150	Drake, Dis. Int. Valley, N. A., p. 269.
				1827	Sept. 1		Nov. —	90	A. P. Merrill, Galv. M. J., 1807, p. 861.
				1829	Sept. 8		Nov. 25	280	Drake, Dis. Int. Valley, N. A., p. 191.
				1837	Sept. —		Nov. —	235	Do.
				1839	Sept. —		Nov. —		Do.
				1844	June —		Nov. —		Cartwright, N. O. M. and S. J., 1848, p. 225.
				1848	July 17				C. H. Stine, N. O. M. and S. J., 1849, p. 549.
				1853					B. Dwyler, Tableau of Yellow Fever, 1853, p. 26.

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Table of Localities in the United States where Yellow Fever has appeared since A. D. 1663, &c.—Continued.

State.	Locality.	Situation.	Elevation, in feet, above sea-level.	DATE OF COMMENCEMENT.		DATE OF SUSPENSION.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
New York	Brooklyn, Kings Co.	A seaport.	40	1823	July 14	.....	.....	.....	Carponter, Sketches of Yellow Fever. 3d Nat'l Quarantine and Sanitary Convention, p. 41.
	Catskill, Greene Co.	On Hudson River.	50	1856	.....	.....	.....	.....
				1743	.....	.....	.....	.....
	Governor's Island.	New York Harbor	25	1803	Aug. 10	.....	Sept. 23	8	B. W. Dwight, M. Reps. 3d Nat'l Quarantine and Sanitary Convention, p. 41.
	Gowanus, Kings Co.	On Gowanus Cove, near New York Harbor.	15	1856	July 29	.....	.....	.....	Report Board of Health, New York, 1870, p. 29. Va. M. J., 1856, p. 328.
	Greenfield, Saratoga Co.	Far inland.	150	1870	Sept. —	.....	Oct. 26	49	
	Huntington, Suffolk Co.	Huntington Bay	20	1856	.....	.....	.....	.....
	New York, New York Co.	A seaport.	35	1798	.....	.....	.....	.....	J. G. Scott, M. Repos., 1807, p. 291.
				1795	.....	.....	.....	.....	Dr. D. Hecack, M. and Philos. Reg., 1813, p. 191.
				1798	.....	.....	.....	.....	Do.
				1668	.....	.....	.....	.....	J. H. Griscom, M. Rep., 1856, p. 561.
				1702	.....	.....	Sept. 30	570	J. H. Griscom, Visitations of Yellow Fever, p. 2.
				1732	.....	.....	.....	.....	J. H. Griscom, Visitations of Yellow Fever, p. 3.
				1741	.....	.....	.....	.....	Ed. N. Y. J. M., 1856, p. 278.
				1742	.....	.....	.....	.....	Do.
				1743	.....	.....	.....	217	J. H. Griscom, Visitations of Yellow Fever, p. 3.
				1745	.....	.....	.....	.....	Do.
				1747	.....	.....	.....	.....	J. H. Griscom, Visitations of Yellow Fever, p. 4.
				1748	.....	.....	.....	.....	Daily Shreveport Times, vol. 2, No. 811, 1873.
				1762	.....	.....	.....	.....	Do.
				1790	.....	.....	Oct. 15	.....	W. Hume, Ch. M. J. and Rev., 1860, p. 24.
				1791	Aug. —	.....	.....	.....	Ed. N. Y. J. M., 1856, p. 278, and Brown, Quarantine, p. 6.
				1799	.....	.....	.....	.....	Ed. N. Y. J. M., 1856, p. 278.
				1793	.....	.....	.....	.....	Do.
				1794	.....	.....	.....	.....	Do.
				1795	July 19	.....	.....	730	Bayley's Account of Epidemic Fever, 1795.
				1796	.....	.....	.....	.....	Ed. N. Y. J. M., 1856, p. 278.
				1797	.....	.....	.....	.....	Do.
				1797	.....	.....	Nov. —	2,080	Do.
				1798	Aug. —	.....	Nov. —	76	Do.
				1799	July —	.....	Oct. 14	*21	Do.
				1800	Sept. —	.....	Oct. —	*16	Do.
				1801	Sept. —	.....	Oct. —	*2	Do.
				1802	.....	.....	Oct. —	6,700	W. Hume, Ch. M. J. and Rev., 1860, p. 24.
				1803	July 18	.....	Oct. —	340	Ed. N. Y. J. M., 1856, p. 278.
				1803	June —	.....	Oct. —	.....	J. H. Griscom, M. Rep., 1856, p. 561.
				1806	June —	.....	Nov. —	*0	Ed. N. Y. J. M., p. 278.

North Carolina	Queensborough, Orange Co Red Hook, Dutchess Co., Stapleton, Staten Island, New York Bay Richmond Co. Tompkinsville, Staten Isl- and, Richmond Co. West Neck, Suffolk Co. West Point, Orange Co. Yellow Hook Deafout, Carteret Co.	On Hudson River New York Bay do do On Hudson River Newport River, near the sea.	1807	.....	.....	.....	*3	J. H. Griseom, M. Rep., 1856, p. 561
			1808	.....	.....	.....	*1	Ed. N. Y. J. M., 1856, p. 284.
			1809	.....	.....	.....	Do.	
			1810	.....	.....	.....	*2	
			1811	.....	.....	.....	*1	
			1812	.....	.....	.....	Do.	
			1813	.....	.....	.....	*7	
			1814	.....	.....	.....	Do.	
			1815	.....	.....	.....	*0	
			1816	.....	.....	.....	Do.	
			1817	.....	.....	.....	*4	Ed. N. Y. J. M., 1856, p. 281
			1818	.....	.....	.....	*4	
			1819	Aug. —	.....	.....	Do.	
			1820	.....	.....	.....	37	
			1821	.....	.....	.....	Do.	
			1822	.....	.....	.....	*16	
			1823	July 10	.....	Nov. 5	230	
			1824	.....	.....	.....	Do.	
			1825	.....	.....	.....	*5	
			1826	.....	.....	.....	Do.	
			1827	.....	.....	.....	*8	
			1828	.....	.....	.....	*1	
			1829	.....	.....	.....	Do.	
			1830	.....	.....	.....	*2	
			1831	.....	.....	.....	Do.	
			1832	.....	.....	.....	*1	
			1833	.....	.....	.....	Do.	
			1834	.....	.....	.....	*2	
			1835	.....	.....	.....	Do.	
			1836	.....	.....	.....	*1	
			1837	.....	.....	.....	Do.	
			1838	.....	.....	.....	*8	Ed. N. Y. J. M., 1856, p. 284.
			1839	.....	.....	.....	*4	
			1840	.....	.....	.....	Do.	
			1841	.....	.....	.....	*5	
			1842	.....	.....	.....	Do.	
			1843	.....	.....	.....	*2	
			1844	.....	.....	.....	Do.	
			1845	.....	.....	.....	*0	
			1846	.....	.....	.....	Do.	
			1847	.....	.....	.....	*0	
			1848	Aug. 12	.....	.....	*12	Do. and Trans. A. M. A., vol. 7, p. 163.
			1849	.....	.....	.....	Do.	
			1850	.....	.....	.....	*1	Ed. N. Y. J. M., 1856, p. 284.
			1851	.....	.....	.....	Do.	
			1852	.....	.....	.....	*14	
			1853	.....	.....	.....	Do.	
			1854	.....	.....	.....	*30	
			1855	.....	.....	.....	Do.	
			1856	.....	.....	.....	*5	
			1857	.....	.....	.....	Do.	
			1858	May 23	.....	Oct. 30	18	B. M. and S. J., vol. 80, No. 23, p. 587.
			1859	.....	.....	.....	Do.	Heber Smith, Report Sup. Surg. U. S. M. H. S., 1873.
			1860	.....	.....	.....	Do.	J. G. Scott, M. Repos., 1807, p. 292.
			1861	.....	.....	.....	Do.	Va. M. J., 1856, p. 328.
			1862	.....	.....	.....	Do.	A. B. Whiting, Ch. M. J. and Rev., 1848, p. 613.
			1863	Aug. 23	.....	.....	Do.	
			1864	.....	.....	.....	Do.	
			1865	Aug. 23	.....	.....	Do.	
			1866	.....	.....	.....	Do.	
			1867	.....	.....	.....	Do.	
			1868	.....	.....	.....	Do.	
			1869	.....	.....	.....	Do.	
			1870	.....	.....	.....	Do.	
			1871	.....	.....	.....	Do.	
			1872	.....	.....	.....	Do.	
			1873	.....	.....	.....	Do.	
			1874	.....	.....	.....	Do.	
			1875	.....	.....	.....	Do.	
			1876	.....	.....	.....	Do.	
			1877	.....	.....	.....	Do.	
			1878	.....	.....	.....	Do.	
			1879	.....	.....	.....	Do.	
			1880	.....	.....	.....	Do.	
			1881	.....	.....	.....	Do.	
			1882	.....	.....	.....	Do.	
			1883	.....	.....	.....	Do.	
			1884	.....	.....	.....	Do.	
			1885	.....	.....	.....	Do.	
			1886	.....	.....	.....	Do.	
			1887	.....	.....	.....	Do.	
			1888	.....	.....	.....	Do.	
			1889	.....	.....	.....	Do.	
			1890	.....	.....	.....	Do.	
			1891	.....	.....	.....	Do.	
			1892	.....	.....	.....	Do.	
			1893	.....	.....	.....	Do.	
			1894	.....	.....	.....	Do.	
			1895	.....	.....	.....	Do.	
			1896	.....	.....	.....	Do.	
			1897	.....	.....	.....	Do.	
			1898	.....	.....	.....	Do.	
			1899	.....	.....	.....	Do.	
			1900	.....	.....	.....	Do.	

* Star indicates the reports of deaths at the Marine Hospital, N. Y. for the respective years. Ed. N. Y. J. M., 1856, p. 284.

Table of Localities in the United States where Yellow Fever has appeared since A. D. 1638, &c.—Continued.

State.	Location.	Situation.	Elevation, in feet, above sea-level.	DATE OF COM- MENCEMENT.		DATE OF SUB- SISTENCE.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
North Carolina.	New Bern, Craven Co.	On Neuse River.	20	1799	Sept. —	Nov. —	1800	700	M. Repas, 1800, p. 197.
	Smithville, Brunswick Co.	On Cape Fear River, near the ocean.	15	1862	—	—	1864	—	Report Medical Inspector U. S. A., Dec. 31, 1864.
	Washington, Beaufort Co.	On Tar River, 40 miles from Pamlico Sound.	35	1800	—	—	1800	—	W. T. Wragg, N. Y. M. J., vol. ix, No. 5, 1869, p. 49.
	Wilmington, New Han- over Co.	On Cape Fear River, 34 miles from the sea.	25	1796	—	—	1796	—	M. Repas, 1800, p. 197.
	—	—	—	1800	—	—	1800	—	J. H. Griseom, N. Y. J. M., p. 369.
Ohio.	Cincinnati, Hamilton Co.	On Ohio River.	550	1871	Aug. 6	Nov. 17	1871	446	M. Repas, 1800, p. 197.
	—	do.	—	1873	—	—	1873	—	J. Hill, A. M. Rec., 1822, p. 86, and Brown, Quar- antine, p. 18.
Pennsylvania.	Gallipolis, Gallia Co.	Center of Pennsylvania, on West Branch of Susque- hanna River.	520	1796	—	—	1799	—	W. T. Wragg, N. Y. J. M., 1869, p. 473, and 1869, p. 225.
	Bald Eagle Valley, Chis- tem Co.	On Delaware River.	550	1798	—	—	1798	50	Med. and Surg. Rep. vol. 25, No. 16, p. 354.
	—	do.	—	1805	—	—	1805	—	Health Office Report.
	—	do.	—	1793	—	—	1793	—	A. Edlicott, M. Repas, 1801, p. 74.
	—	do.	—	1803	—	—	1803	—	W. Harris, M. Repas, 1801, p. 75.
	—	On Yellow Breches Creek, 9 miles from Harrisburgh.	250	1798	Aug. —	—	1798	—	J. H. Griseom, Visitations of Yellow Fever, p. 9.
	—	do.	15	1798	—	—	1798	—	Dowler, Tables of Fev., p. 13.
	—	do.	—	1798	—	—	1798	—	La Roche, Yellow Fever, p. 68.
	—	do.	—	1798	—	—	1798	—	W. Baldwin, Med. Mus., 1805, p. 601.
	—	do.	—	1798	—	—	1798	—	J. Rush, Med. Mus., 1805, p. 62.
	—	do.	—	1799	—	—	1799	—	W. Harris, M. Repas, 1800, p. 75.
	—	do.	—	1695	—	—	1695	—	J. N. Schoellkopf, Va. M. J., 1857, p. 358.
	—	do.	—	1699	Aug. 1	—	1699	220	R. La Roche, Ch. M. J. and Rev., 1852, p. 58.

Rhode Island	Southwark, Philadelphia Co Block Island Bristol, Bristol Co	On Delaware River In Long Island Sound On Narragansett Bay	1794	.....	.....	.....	.....	La Roche, Board of Health Rep., Phila., 1870, p. 55.
			1796	.....	.....	.....	.....	J. H. Grison, N. Y. J. M., 1856, p. 369, and 1856, p. 368.
			1797	Aug. 1	Oct. 15	1, 300	Do.	Rush, Epidemic of 1797.
			1798	Aug. 1	Nov. 1	3, 500	Do.	
			1799	Jul. —	Nov. —	1, 000	Do.	W. La Roche, Ch. M. J. and Rev., 1853, p. 458.
			1800	.....	.....	.....	Do.	W. Hume, Ch. M. J. and Rev., 1860, p. 24.
			1801	.....	.....	.....	Do.	
			1802	.....	.....	307	Do.	
			1803	.....	.....	195	Do.	
			1805	.....	.....	3-400	Do.	
			1807	.....	.....	3	Do.	B. Dowler, Tableau of Yellow Fever, 1853, p. 14.
			1809	.....	.....	.....	Do.	
			1810	.....	.....	3	Do.	
			1811	.....	.....	5	Do.	
			1813	.....	.....	6	Do.	
South Carolina	Newport, Newport Co Providence, Providence Co	A port on Narragansett Bay do	1814	.....	.....	7	Do.	
			1815	.....	.....	3	Do.	
			1816	.....	.....	3	Do.	
			1819	.....	.....	13	Do.	S. Toulon, N. A. M. and S. J., 1823, p. 321.
			1820	July 24	.....	83	Do.	S. Jackson, A. M. Rec., 1821, p. 689.
			1823	July 19	Oct. —	128	Do.	W. Jewell, N. Y. J. M., 1854, pp. 149, 246, and Brown, Quarantine, p. 10.
			1824	.....	.....	.....	Do.	Ed. Nash, J. M. and Surg., 1854, p. 345.
			1820	June 29	.....	18	Do.	La Roche, Yellow Fever, 1870, pp. 20, 26.
			1793	.....	.....	.....	Do.	La Roche, Yellow Fever, p. 65.
			1801	June —	Dec. —	.....	Do.	Aaron C. Willey, M. Repost., 1803, p. 123.
			1795	.....	.....	.....	Do.	W. Hume, Ch. M. J. and Rev., 1860, p. 24.
			1796	.....	.....	.....	Do.	
			1797	.....	.....	.....	Do.	
			1806	.....	.....	.....	Do.	
South Carolina	Westerly, Washington Co Charleston, Charleston district	On Pawcatuck River A scaport	1794	.....	.....	.....	Do.	B. Dowler, Tableau of Yellow Fever, 1853, p. 7.
			1795	.....	.....	45	Do.	W. Hume, Ch. M. J. and Rev., 1860, p. 24.
			1797	Aug. 13	Aug. —	45	Do.	W. Hume, Ch. M. J. and Rev., 1860, p. 324.
			1800	.....	.....	.....	Do.	W. Hume, Ch. M. J. and Rev., 1860, p. 24.
			1805	July 19	Aug. —	.....	Do.	P. Bowen, Yellow Fever in Providence in 1805.
			1798	.....	.....	.....	Do.	J. Constock, M. Repost., 1807, p. 23.
			1805	.....	.....	.....	Do.	
			1809	.....	.....	.....	Do.	Simons' Trans. S. C. Med. Ass'n, 1851, p. 37.
			1703	.....	.....	.....	Do.	
			1728	.....	.....	.....	Do.	
			1732	May —	Sep. or Oct. *	8-12	Do.	Simons' Trans. S. C. Med. Ass'n, 1851, p. 37, and Trans. A. M. A., vol. 23, p. 291.
			1734	.....	.....	.....	Do.	T. Harris, Phil. M. and P. J., No. 5, p. 21.
			1739	.....	.....	.....	Do.	W. Hume, Ch. M. J. and Rev., 1854, p. 145.
			1745	.....	.....	.....	Do.	
			1748	.....	.....	.....	Do.	
			1753	.....	.....	.....	Do.	
			1755	.....	.....	.....	Do.	
			1761	.....	.....	.....	Do.	T. Harris, Phil. M. and P. J., 1805, p. 21.
			1762	.....	.....	.....	Do.	Dawson & De Saussure, Consuls of Charleston.

* Died daily.

Table of Localities in the United States where Yellow Fever has appeared since A. D. 1668, &c.—Continued.

State.	Locality.	Situation.	Elevation, in feet, above sea-level.	DATE OF COM- MENCEMENT.		DATE OF SUS- PENSION.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
South Carolina...	Charleston, Charleston dis- trict.	A seaport.....	10	1768	.....	.....	.....	.....	M. M. Dowler, N. O. M. J., 1859, p. 305. T. Harris, Phil. M. and Ph. J., 1805, p. 24. W. Hume, Ch. M. J. and Rev., 1852, p. 145, and Si- mons' Trans. Med. Ass'n S. C., 1851, p. 38.
				1770	.....	.....	.....	.....
				1792	.....	.....	.....	.....
				1794	.....	.....	.....	.....	Do.
				1795	.....	.....	.....	.....	Do.
				1796	.....	.....	.....	.....	Do.
				1797	.....	.....	.....	.....	Do.
				1798	.....	.....	.....	.....	T. Y. Simons, Ch. M. J., and Rev., 1851, p. 779.
				1799	.....	.....	.....	239	W. Hume, Ch. M. J., and Rev., 1854, p. 145, and Si- mons' Trans. Med. Soc. S. C., 1851, p. 38.
				1800	.....	.....	.....	184	Do.
				1802	.....	.....	.....	96	Do.
				1803	.....	.....	.....	148	Simons' Trans. S. C. Med. Ass'n, 1851, p. 37.
				1804	.....	.....	.....	.....	Do.
				1805	.....	.....	.....	.....	Do.
				1807	.....	.....	.....	162	Simons' Trans. S. C. Med. Ass'n, p. 38.
				1812	.....	.....	.....	.....	W. Hume, Ch. M. J., and Rev., 1854, p. 145.
				1817	July	.....	Nov.	272	Dowler, N. O. M. J., 1859, p. 597.
				1819	Aug.	.....	Oct.	177	Do.
				1822	June	.....	Aug.	2	Do.
				1824	Aug.	.....	Nov.	235	Do.
				1825	Aug.	.....	Sept.	2	Do.
				1827	Aug.	.....	Nov.	61	Do.
				1828	Aug.	.....	Sept.	26	Do.
				1830	Sept.	.....	Nov.	30	Do.
				1831	Aug.	.....	Oct.	49	Do.
				1835	Aug.	.....	Sept.	25	Do.
				1838	Aug.	.....	Nov.	351	Do.
				1839	June	.....	Oct.	131	Do.
				1840	Aug.	.....	Oct.	22	Do.
				*1841	.....	.....	.....	.....	Simons' Trans. S. C. Med. Ass'n, p. 59.
				1843	.....	.....	Nov.	1	Dowler, N. O. M. J., p. 597.
				1849	Aug.	.....	Nov.	135	Do.
				1852	Aug.	.....	Nov.	340	Do.
				1854	Aug.	.....	Nov.	627	Do.
				1856	Aug.	.....	Nov.	211	Do.
				1857	Sept.	.....	Nov.	13	Do.

				July —	Dec. —	717	
Tennessee	Beaufort, Beaufort district.	10	1862	July 27	Nov. —	213	Brown, Quarantine, p. 20.
	Columbia, Richland dist.	10	1864	July 19	Nov. —	213	Trans. A. M. A., vol. 23, p. 292.
	Fort Moultrie.	175	1871	Aug. 6	Nov. 21	7	Simons' Trans. A. M. A., vol. 23, p. 293.
		15	1874				Trans. A. M. A., vol. 23, p. 331.
	Georgetown, Georgetown district.	10	1852	Aug. 15			Ed. Nash. J. M. and S., 1854, p. 345.
	Hilton Head	10	1858	Aug. 30	Oct. 28		M. M. Dwyer, N. O. M. J., 1854, p. 305.
	Mount Pleasant, Charleston Co.	10	1854				Ch. M. J. and Rev., 1853, p. 844.
		10	1856				W. C. Miller, Ch. M. J. and Rev., 1856, p. 19.
		10	1862	Sept. 8	Oct. 25		Brown, Quarantine, p. 30.
		10	1817				R. A. Kinloch, Ch. M. J. and Rev., 1858, p. 793.
Texas	Memphis, Shelby Co.	260	1848				Do.
		1855	1852				Do.
		1866	1854				Do.
		1873	1856				Do.
		250	1857				Do.
	Alleyton, Colorado Co.	250	1853				W. J. Tuck, N. O. M. and S. J., 1854, p. 602.
	Anderson, Grimes Co.	200	1867	Sept. 4	Nov. 9	1244	A. P. Merrill, Galv. M. J., 1867, p. 861.
			1867				Ed. Amer. Prac., vol. 8, 1873, p. 319.
			1867				Memphis Board of Health. See G. B. Thornton, in Report of Supervising Surgeon U. S. Mar. Hos Service, 1873.
			1867				Trans. A. M. A., vol. 19, p. 289.
	Austin.	260	1867				Trans. A. M. A., vol. 19, p. 275.
	Bastrop, Bastrop Co.	50	1867				Galv. M. J., 1867, vol. 2, No. 10, p. 930.
	Beaumont, Jefferson Co.	180	1863			1	Trans. A. M. A., vol. 19, p. 275.
	Belleville, Austin Co.	30	1859				J. Stephens, N. O. M. and S. J., 1856, p. 601.
	Brazoria, Brazoria Co.	300	1867	Aug. 11	Oct. 31	120	B. Dwyer, N. O. M. J., 1860, p. 443.
	Brenham, Washington Co.	25	1853	Sept. 23	Dec. 23	50	Trans. A. M. A., vol. 19, p. 275.
	Brownsville, Cameron Co.	325	1858	Aug. —	Nov. —	41	Army Medical Statistics, p. 353.
			1862				S. Chaila, N. O. M. and S. J., 1858, p. 811.
	Calvert, Robertson Co.	200	1867	Oct. 12	Jan. 10	250	Galv. M. J., 1866, p. 170.
			1873				Newspapers.
	Chapel Hill, Washington Co.	250	1867	Aug. 6	Dec. —	133	Trans. A. M. A., vol. 19, p. 275.
	Columbus, Colorado Co.	25	1873			132	Newspapers.
	Columbia, Brazoria Co.	395	1873				Galv. M. J., 1866, p. 163.
	Corsicana, Navarro Co.	15	1862				Newspapers.
	Corpus Christi, Nueces Co.	15	1867	Aug. —			Galv. M. J., 1866, p. 170.
			1873				Brown, Quarantine, p. 70.
							Newspapers.

* Not within the incorporated limits of Charleston, South Carolina.

Table of Localities in the United States where Yellow Fever has appeared since A. D. 1658, &c.—Continued

State.	Locality.	Situation.	Elevation, in feet, above sea-level.	DATE OF COM- MENCEMENT.		DATE OF SUS- PENSION.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
Texas	Cypress City, Harris Co.	Near Cypress Bayou, a branch of the San Jacinto River.	60	1853					Galv. M. J., 1866, p. 169.
				1859					B. Dowler, N. O. M. J., 1860, p. 443. Trans. A. M. A., vol. 19, p. 496.
	Danville, Montgomery Co.	On branch of the San Jacinto River.	160	1867					
	Edinburg, Cameron Co.	On Rio Grande River.	100	1859	July 12			13	B. Dowler, N. O. M. J., 1860, p. 443 Trans. A. M. A., vol. 19, p. 284.
	Goliad, Goliad Co.	On San Antonio River.	50	1867	July 12			23	
	Galveston, Galveston Co.	On an island in Galveston Bay.	5	1859	Sept. 30		Oct. 11	250	Galv. M. J., 1867, p. 856.
				1844	July 5			400	Galv. M. J., 1867, p. 838.
				1847	Oct. 1		Nov. 25	200	Do.
				1853	Aug. 16		Nov. 28	536	Ed. Mod. and Surg. Rep., vol. 17, 1867, No. 14, p. 297.
				1854	Aug. 9		Nov. 5	404	Do.
				1858	Aug. 27		Nov. 14	344	Do.
				1859	Sept. 17		Nov. 30	163	Do.
				1864	Sept. 1		Nov. 20	259	Do.
				1866					Galv. M. J., 1866, p. 238.
				1867	June 26		Nov. —	1, 150	S. M. Welch, Galv. M. J., vol. 1, No. 2, p. 83. Trans. A. M. A., vol. 19, p. 289.
	Isburg, Harris Co.	On Buffalo Bayou.	55	1867				151	Trans. A. M. A., vol. 19, p. 275.
	Pemphstead, Austin Co.	50 miles from Houston, and near Brazos River.	200	1867	Aug. 9		Nov. 26		Galv. M. J., 1866, p. 169. W. McCraven, N. O. M. N., 1860, p. 105.
	Hockley, Harris Co.	Near Buffalo Bayou.	50	1853					Do.
	Houston, Harris Co.	On Buffalo Bayou.	50	1849					Do.
				1844					Do.
				1847					Do.
				1848					Do.
				1853					Do.
				1854					Do.
				1856					Do.
				1859					Do.
				1864					Do.
				1870					Galv. M. J., 1866, p. 163. Galv. M. J., 1870, p. 296.
	Huntsville, Walker Co.	200 miles east by north of Austin.	200	1864			Oct. —	1	Trans. A. M. A., vol. 19, p. 275.
	Independence, Washing- ton Co.	80 miles east of Austin, near Brazos River.	250	1867	Aug. 9		Oct. 19	130	Trans. A. M. A., vol. 19, p. 289.

Indianola, Calhoun Co.	On Matagorda Bay.	10	1852	Sept. —	.....	.....	.....	Indianola Bulletin, Dec. 16, 1870.
			1853	.....	.....	.....	.....	Brown, Quarantine, p. 62.
			1858	.....	.....	.....	.....	Heard, Rep. Epid. of Texas, p. 15.
			1859	.....	.....	.....	.....	B. Dowler, N. O. M. J., 1860, p. 443.
			1862	.....	.....	.....	.....	Brown, Quarantine, p. 65.
			1867	June 20	.....	80	.....	Trans. A. M. A., vol. 19, p. 262.
La Grange, Fayette Co.	On Colorado River.	450	1867	Aug. —	.....	300	.....	Trans. A. M. A., vol. 19, p. 275.
Liberty, Liberty Co.	On Trinity River.	40	1867	.....	.....	.....	.....	Trans. A. M. A., vol. 19, p. 289.
Liverpool, Brazoria Co.	36 miles west of Galveston, near Chocolate River.	25	1853	Aug. —	.....	4	.....	Galv. M. J., 1866, p. 169.
Matagorda, Matagorda Co.	On Matagorda Bay.	15	1862	.....	.....	120	.....	Galv. M. J., 1866, p. 170.
			1863	.....	.....	.....	.....	Trans. A. M. A., vol. 19, p. 266.
Millican, Brazos Co.	Near Brazos River.	300	1864	.....	.....	.....	.....	Galv. M. J., 1866, p. 175.
			1867	Oct. 15	.....	Nov. 12	4	Trans. A. M. A., vol. 19, p. 275.
Navasota, Grimes Co.	On the Navasota River.	200	1867	Aug. 12	.....	Dec. —	154	A. R. Kilpatrick, Galv. M. J., 1866, vol. 1, No. 3, p. 132.
Oldtown, near Indianola	.....	20	1867	Oct. 13	.....	.....	.....	Trans. A. M. A., vol. 19, p. 362.
Port Lavaca, Calhoun Co.	On Lavaca Bay.	15	1867	July 3	.....	Oct. 29	1867	Trans. A. M. A., vol. 19, p. 283.
Richmond, Fort Bend Co.	On Brazos River.	125	1853	.....	.....	.....	.....	Galv. M. J., 1866, p. 163.
			1859	.....	.....	.....	.....	B. Dowler, N. O. M. J., 1860, p. 443.
			1867	.....	.....	.....	.....	Heard, Epidemic diseases of Texas.
Rio Grande City, Starr Co.	On Rio Grande River.	200	1867	July —	.....	Oct. 1	14	Galv. M. J., 1866, p. 170.
Sabino City, Jefferson Co.	On Sabine Lake.	10	1863	.....	.....	.....	.....	B. Dowler, N. O. M. J., 1860, p. 443.
Salina, Calhoun Co.	On Matagorda Island.	10	1853	.....	.....	.....	.....	Trans. A. M. A., vol. 19, p. 284.
Sugarland, Fort Bend Co.	On Brazos River.	100	1859	.....	.....	.....	.....	Dr. Dick, Med. Repos., 1864, p. 190.
Victoria, Victoria Co.	On Guadalupe River.	50	1867	Aug. 1	.....	Dec. 25	200	Currie, Memoirs of Yellow Fever, p. 109.
Alexandria, Alexandria Co.	On Potomac River.	25	1863	Aug. 1	.....	.....	.....
City Point, Prince George Co.	On James River.	15	1798	.....	.....	.....	.....
Gosport, Norfolk Co.	On Elizabeth River.	20	1855	.....	.....	.....	.....	J. A. Manning, Va. M. J., 1857, p. 288.
Hampton Roads.	Harbor. ....	.....	1869	.....	.....	.....	.....	Brown, Quarantine, p. 18.
Norfolk, Norfolk Co.	On Elizabeth River.	30	1747	.....	.....	.....	.....	Daily Shreveport Times, vol. 2, No. 311, 1873.
			1794	.....	.....	.....	.....	J. H. Griscorn, N. Y. J. M., 1856, p. 369.
			1795	.....	.....	.....	.....	Do.
			1796	.....	.....	.....	.....	Va. M. J., 1857, p. 95.
			1797	.....	.....	.....	.....	J. H. Griscorn, N. Y. J. M., 1866, p. 369.
			1798	.....	.....	.....	.....	Va. M. J., 1857, p. 95.
			1799	.....	.....	.....	.....	Do.
			1800	July 26	.....	Oct. 30	250	Med. Repos., vol. 4, p. 329.
			1801	.....	.....	.....	.....	Va. M. J., 1857, p. 95.
			1802	.....	.....	.....	.....	Do.
			1803	.....	.....	.....	.....	Do.
			1804	.....	.....	.....	.....	Do.
			1805	.....	.....	.....	.....	Do.
			1821	Aug. 1	.....	.....	.....	Va. M. J., 1857, p. 95.
			1826	Sept. 1	.....	.....	.....	Committee's Report, p. 14.
			1852	Aug. 7	.....	.....	.....	Va. M. J., 1857, p. 95.
			1854	Oct. —	.....	Nov. 2	3	Do.
			1855	June 30	.....	Oct. —	1, 807	Portsmouth Relief Association Report.
			1798	.....	.....	.....	.....	Currie, Memoirs Yellow Fever, p. 109.
			1852	.....	.....	.....	.....	Portsmouth Relief Association Report, p. 91.
			1854	.....	.....	.....	.....	Do.
			1855	Aug. 1	.....	Oct. —	1, 000	Portsmouth Relief Association Report, p. 77.
Petersburg, Dinwiddie Co.	On Appomattox River.	20	1798	.....	.....	.....	.....
Portsmouth, Norfolk Co.	On Elizabeth River.	20	1854	.....	.....	.....	.....

Table of Localities in the United States where Yellow Fever has appeared since A. D. 1668, &c.—Continued.

State.	Locality.	Situation.	Elevation in feet, above sea-level.	DATE OF COMMENCEMENT.		DATE OF SUSPENSION.		Mortality.	Authority.
				Year.	Month.	Year.	Month.		
Virginia.....	Richmond, Henrico Co.	On James River.....	50	1806	.....	.....	.....	.....	M. Repas., 1807, p. 215.
	Scott's Creek, near Portsmouth.	.....	15	1835	June 29	.....	.....	.....	J. A. Manning, Va. M. J., 1837, p. 29.
	Winchester, Frederick Co.	20 miles from the Blue Ridge Mountains.	700	1804	July —	.....	.....	.....	R. Dunbar, Med. Repas., 1805, p. 252.

THE YELLOW-FEVER EPIDEMIC OF 1873.

C.—THE YELLOW-FEVER EPIDEMIC OF 1873.

[THE intimate connection of the sea-faring community with every epidemic of yellow fever in the United States of which we have any trustworthy account, seemed to render it desirable to secure as full reports as possible of the epidemic of 1873, from the stand-point of the surgeons of the Marine-Hospital Service, or from those in charge of marine-hospital patients at ports where the disease appeared. With this object the Supervising Surgeon, about the middle of October, addressed a letter to these gentlemen, requesting them to furnish such facts as came under their observation relating to yellow fever at their ports; the dates of its first appearance thereat; the places from which it was imported, and the modes of introduction; the number of cases and of deaths which occurred; the hygienic conditions of their respective communities; the influence of quarantine or other precautionary measures upon the introduction or arrest of the disease; and such other local observations as might be deemed pertinent, or as they were able to make. In response to this request, reports, more or less detailed, have been received from New York City, Mobile, New Orleans, Memphis, Cairo, and Louisville; and a report from Pensacola is promised, as also one from Shreveport, delayed through the illness of the surgeon.

The epidemic is probably too recent to secure accounts satisfactory in every particular; the interruption of usual methods and routine, the relaxation following the terrible mental and physical strain, the slow convalescence from the disease itself in some cases—all these causes have combined to render the received reports imperfect. But they are, nevertheless, fuller than any that have at this date appeared, and form a not unimportant contribution to the history of a disease which has cost the Southern and Gulf States untold millions of dollars, and, it is safe to say, more lives than they have lost in warfare.

Extended comment upon these reports is advisedly deferred for the present, in the expectation of obtaining fuller information on certain points, and of correcting some discrepancies in those already furnished. It will be noted, for example, in the table on page 111, compiled from the reports mentioned, and from the *Monthly Returns of sick and disabled*, that while the disease is not reported as having made its appearance at Shreveport until the 12th of August, it is alleged to have been brought to Memphis as early as the 10th of that month, by a traveler, from the former place. It will probably be found that this traveler contracted his disease on board the tow-boat which brought him from the mouth of Red River to Memphis, (see Dr. Thornton's report page 104,) and which left New Orleans August 2, yellow fever having prevailed there from the

latter part of June, or early part of July. This inference is further strengthened by the fact that on the arrival of this boat at Memphis her captain and several of the crew were sick, and, though of what disease is not stated, the body of the captain, who died a few hours after leaving Memphis, presented every appearance of having died of yellow fever. If it can be obtained, the history of this tow-boat, which is presumably the same as the one mentioned in the Cairo report, will probably determine this point.

It will be interesting, also, to collate the experience of southern physicians and their views of the relation of dengue to yellow fever, and of the influence of the latter upon the endemic fevers. The reports of the surgeons of the Marine-Hospital Service, immediately preceding and during the yellow-fever epidemic of 1873, show a marked increase in the number of cases, and in the virulence and fatality of this class of the so-called zymotic diseases due to paludal malaria. It was especially noticed that the intermittent fevers were prone to take on the congestive form; and the terms "pernicious," "congestive," and "malignant" occur quite frequently in the reports made during the months of, and immediately preceding, the epidemic. In New Orleans the yellow fever seems to have been overshadowed by an epidemic of dengue or "break-bone fever," from which it is estimated that fully 50,000 of the inhabitants suffered. Dr. Reilly (U. S. M.-H. S.) states that the same condition obtained during the yellow-fever epidemic of 1854 in Charleston, S. C., when so many natives were attacked, with such a light mortality; and observes that physicians then differed widely in their diagnoses, many reporting cases as yellow fever which others called "break-bone fever." This may serve to explain the anomaly of natives apparently suffering from yellow fever, as well as of cases reported among those who had suffered in previous epidemics. Dr. Reilly himself, for instance, after having had a severe attack of unmistakable yellow fever, with black vomit, in 1852, was again treated for the same disease during the epidemic of 1854, but from the brief duration of the attack, the severity and character of the accompanying pain, and other symptoms, it seems probable that this second disease was the so-called "break-bone fever."

Of more direct practical utility, however, is the study of measures of prevention—the answer to the question how far the use of carbolic acid is to be credited with the jugulation of the threatened epidemic at New Orleans and Mobile; to what extent efficient or defective sanitary measures affect the progress of yellow fever, in the light of the recent experience in the two former cities as compared with Memphis and Shreveport; what is proper quarantine for this disease at various ports, and what is the true scope, function and value of quarantine; can a quarantine be effective which does not embrace "commerce with foreign nations and among the several States" by land, as well as by water? Inquiries concerning these and kindred matters are still being prosecuted

by the medical officers of the Service; and from the results of their studies it is hoped to be able to frame a plan of prophylactic action to be observed by marine-hospital surgeons throughout the yellow-fever season, the results of which should form an interesting feature of the subsequent annual reports of the Supervising Surgeon.

Meantime, it may be remarked that the substantial immunity of New Orleans and Mobile from yellow fever this year, under similar conditions of repeated exposures on the one hand, and of well-organized municipal sanitation, coupled with free carbolic disinfection, on the other, would seem to indicate that one or both of these latter are sufficient to arrest yellow fever, or at least to prevent its becoming epidemic. To what extent the use of carbolic acid is an efficient agent is yet to be determined; but of the value of general disinfection, thorough cleanliness, good sewerage, pure air, unpolluted water, wholesome food, individual hygiene—in short, of what goes to make up a good sanitary condition, there can be no question. When such a condition obtains generally throughout the land it will probably only remain to prevent the introduction of fomites, by an intelligent quarantine, in order to be justified in writing *dele* opposite *febris flava* in the American nosology.—W.]

REPORTS ON YELLOW FEVER IN 1873.

From the Medical Officers of the United States Marine-Hospital Service.

NEW YORK, December 1, 1873.

SIR: In answer to your communication of the 15th ultimo, concerning yellow fever, I have the honor to submit the following report of cases treated in United States Marine Hospital, (Class II,) port of New York, year 1873:

1. Jorgen Andersen; æt. 23; nationality, Swedish; occupation, seaman; admitted from schooner *Jennie Stout*; taken sick on passage from New Orleans; entered hospital July 30; died August 1.

The two following cases from same vessel, admitted at same time, recovered: 2. Gulick Gulbrozen; æt. 23; discharged August 21. 3. Bernard Nicholson; æt. 37; discharged November 3.

4. George Otto; æt. 19; nationality, German; occupation, waiter; admitted from steamer *Morro Castle*; taken sick on passage from Havana; entered hospital August 30; died September 1.

5. Madison Wismore; æt. 27; nationality, American; occupation, engineer; admitted from steamer *Metropolis*; was sick in New Orleans, though the disease was not positively ascertained to have been yellow fever; entered hospital September 22; died September 27. This was undoubted yellow fever when received, and was probably a relapse.

I have also obtained from the records of the Board of Health of this city the particulars of the only cases there reported, as follows:

Fred. W. Bacon; æt. 22; waiter on steamer *Yazoo*; sailed from New Orleans for Philadelphia latter part of May; touched at Havana; and was quarantined, on account of cholera, in New Orleans. Sickness appeared on the ship May 27; arrived at Philadelphia May 29; was not quarantined. Bacon came on to New York; arrived May 31; sick on arrival; taken to No. 7 Eldridge street, and died June 2.

Patrick Hennessy; æt. 30; came from Memphis last of October; also sick on arrival; died in ambulance, on way to hospital, October 30.

The cases reported in Brooklyn were newspaper cases, and were pronounced to be malarial fever by competent authority.

I have the honor, also, to transmit the inclosed communication from Dr. Mosher, deputy health-officer of the port of New York:

HEALTH-OFFICER'S DEPARTMENT,
Quarantine, Tompkinsville, S. I., November 3, 1873.

MY DEAR DOCTOR: I am requested by Dr. Van der Poel to furnish, in answer to your inquiry of 30th ultimo, the following:

Cases of yellow fever occurring at quarantine during 1873:

- (1.) First case, May 23. (2.) Last case, October 1. (3.) Total number of cases, 62.
(4.) Mortality, 13 deaths. (5.) All cases were taken from vessels arriving at this port.

Very truly, yours,

J. S. MOSHER.

DR. HEBER SMITH.

From the foregoing it will be seen that there were in all sixty-nine cases of yellow fever, and eighteen deaths therefrom, at this port during the past season; and that so long as quarantine is a matter controlled by State caprice or fear, there is nothing to prevent the introduction of this or any other disease into a community; no matter how rigid or perfect the quarantine of such community may be made—and its present administration at New York is both.

That the yellow fever failed to become epidemic in New York the past season—that it is not epidemic in New York every season—is due, probably, first, to the want of favoring conditions in the season itself, and, second, to the efficiency of the Board of Health; but certainly not to the want of a supply of fomites furnished by land from other ports.

I am, sir, very respectfully, your obedient servant,

HEBER SMITH,

Surgeon U. S. M-H. S.

JOHN M. WOODWORTH, M. D.,

Supervising Surgeon U. S. M-H. S.

NEW ORLEANS, LA., *November 5, 1873.*

SIR: Referring to your letter of October 24, asking for "a sketch of the present yellow-fever epidemic, on its subsidence, the local influences that have affected the disease," etc., I have the honor to state that the first ascertained cases of yellow fever reported in the city were from the Spanish bark *Valparaiso*, which arrived here from Havana in ballast with five passengers, June 26, 1873, having been detained at quarantine four or five days. The mate of this vessel is the only one on board who did not recover, but several vessels lying in the immediate vicinity lost a number of their crew. The number of cases and deaths from the disease to the 29th ult. is as follows:

Weekly Statement of Yellow-Fever Cases and Deaths in New Orleans during the Season of 1873.

During the week ending—	Cases.	Deaths.	During the week ending—	Cases.	Deaths.
<i>Six o'clock p. m.</i>			<i>Six o'clock p. m.</i>		
July 6, 1873.....	1	—	September 14, 1873.....	60	35
July 13, 1873.....	2	1	September 21, 1873.....	37	26
July 20, 1873.....	—	1	September 28, 1873.....	32	21
July 27, 1873.....	1	1	October 5, 1873.....	42	14
August 3, 1873.....	5	—	October 12, 1873.....	32	24
August 10, 1873.....	6	3	October 19, 1873.....	34	18
August 17, 1873.....	10	2	October 26, 1873.....	19	11
August 24, 1873.....	8	2			
August 31, 1873.....	16	6	Total.....	343	187
September 7, 1873.....	38	16			

For the foregoing table I am indebted to the courtesy of Dr. S. C. Russell, secretary of New Orleans Board of Health.*

* * * * *

It is certain that our first cases came from Havana. Quarantine did not prevent it; and it is the opinion of the medical gentlemen who went from here at the first call of distress from Shreveport, that yellow fever was carried to the latter place from New Orleans. Drs. Bruns, Choppin, and Davidson, the physicians referred to, are intelligent, experienced, and well-known members of the faculty, and their opinions are entitled to respect.

New Orleans has been terribly exposed this season from all quarters; for though the disease was brought here originally from Havana, there has been constant communication between this port, Shreveport, and Memphis, and thus repeated new importations. Nurses went from here to Shreveport and returned during the height of the epidemic there and died of the disease here; and fugitives from the pestilence in Shreveport came here to die. To what influence we owe our immunity from the disease, for it has not shown a disposition to spread, I am not prepared to express an opinion, particularly when old physicians of this city, who have devoted a lifetime, one may say, to the study of yellow fever, seeing it in all its phases, have openly confessed their inability to interpret its true nature, and, to use their own words, "the more they saw of it the less they knew about it."

Are we indebted to quarantine regulations for the small number of victims of this scourge? This is hardly probable, for it is proved that the disease was imported from Havana as early as July 6, and it did not appear in Shreveport until the middle of August. Vessels have been arriving weekly from Havana, where the mortality was from four to five hundred daily [weekly?] in July and August, sparing neither native nor foreigner;† and in Memphis, Shreveport, and elsewhere the disease has been fatal almost without parallel. And yet I may safely assert that New Orleans, during the last season, has been one of the few cities of the Union that can boast of a small death-rate in proportion to its population. To what, then, are we to attribute this miraculous escape? In my opinion, thanks are due to good sanitary regulations, to the watchfulness and activity of the board of health, and to the free use of carbolic acid,‡ that yellow fever in this city has been greatly modified, if not completely disarmed of its subtle and terrible power.

I am, sir, very respectfully, your obedient servant,

ORSAMUS SMITH,
Surgeon U. S. M-H. S.

JOHN M. WOODWORTH, M. D.,
Supervising Surgeon U. S. M-H. S.

* [The total number of cases, as subsequently reported by Dr. Smith in "Disease and Injury Return" for November, 1873, is given at 394, with a total of 225 deaths; the first case (the mate of the *Val-paraiso*) appeared on July 4, died July 8; the last case reported, taken sick November 18, died November 24.—W.]

† This statement I have from one who was in Havana during this time.

‡ [It is asserted that nowhere in the world before has disinfection on so extensive a scale been resorted to as in New Orleans during the yellow-fever season of 1873; and, as also in Mobile, it met with considerable opposition from some quarters. Concerning the value of this disinfection, which was begun in New Orleans during the first week in August by the free use of impure carbolic acid, Dr. A. W. Perry, Sanitary Inspector New Orleans Board of Health, in a communication to the *New Orleans Medical and Surgical Journal* for November, says: "To ascertain whether or not the small number of subsequent cases (in infected districts) was because of the small number of persons liable to yellow fever who lived in these squares, a census was taken of the total population of each of the squares, and also of the white persons who had come to the city since 1867, the last epidemic year. In thirty squares, in which most of the yellow-fever cases occurred, the total population was 5,223 an average of 174 per square; of these 1,249 were liable to take yellow fever, being nearly 24 per cent. liable. Of the liable persons 7.3 per cent. took the disease before disinfection, and .9 of one per cent. after disinfection." As an isolated fact this is certainly very striking; but isolated facts are not conclusive, and this question is still open for investigation.—W.]

MEMPHIS, TENN., November 18, 1873.

DEAR SIR: Your communication of the 24th ultimo, requesting me to furnish such facts in regard to the late epidemic of yellow fever in Memphis as are at my command, was duly received, and has already been acknowledged. The delay in furnishing the desired information is due partially to the stress of other duties and engagements growing out of the epidemic, and partially to the necessity of sifting facts from rumors and speculations, which are always rife at such a time.

From the best information I can get on the subject, the first case of yellow fever died in Memphis on the 10th of August. This was a man named Davis, who had been in Texas, and on his way home to Alabama passed through Shreveport, La., during the late epidemic there.

At the mouth of Red River he got on the tow-boat *Bee*, which left New Orleans August 2. The man was put off the boat here at the upper landing, near the mouth of Wolf River, in the afternoon of the 10th of August. At the time he was very ill, unable to take care of himself, and was cared for a few hours by a man named Riley and another man, (name not known,) who lived near the landing. That evening he was carried to the Adams-street station-house, where he died during the night. No physician saw him, but, from what I can learn, there was no doubt of his being a case of yellow fever. Riley, the man with him, and several members of his (Riley's) family, contracted the disease and died a few days after. The physician who visited them I have been unable to find, but the presumption is they were attended by Dr. Crone, who died of yellow fever in September. When the tow-boat arrived here, the captain, C. B. Gall, and several of the crew, were sick. The boat remained here but a few hours, and then proceeded on its trip up the river. At Osceola, Ark., the captain died, and his body was shipped back to Memphis for burial. The body was not coffined until after its arrival here, on the 11th of August, and presented all the appearances of having died of yellow fever.

There were a number of deaths during the last two weeks of August in the neighborhood of the place where the *Bee* landed, but they were not reported as yellow fever by the physicians who attended them. The first case that there is any official record of is the case that I reported in the City Hospital. A patient was admitted to this hospital September 2, very ill with yellow fever; had evidently been sick several days, and died on the 3d. The register then shows admissions of yellow fever patients on September 3, 5, 8, &c. I am satisfied there were a number of cases in the city before any were admitted to hospital, but the disease, if recognized by any physician, was not reported as such.

On September 3 I was called to visit a child at the St. Peter's Orphan Asylum, a Catholic institution, located a short distance from the City Hospital. This child was admitted into the Asylum August 28, apparently well; was taken sick on the 2d of September, and died on the 7th. For twenty-four hours previous to death it had unmistakable black-vomit. This child was brought to the Asylum from the foot of Market street, which is in the immediate neighborhood of the point where the boat *Bee* landed, and there had been several deaths in the house whence the child was brought.

The disease prevailed mostly in the northwestern portion of the city, between Washington and Concord streets. But it extended north beyond the bayou to a part of the city known as Chelsea, (the Ninth ward,) mostly occupied by residences, and prevailed here, to a very considerable extent, more than it did in any other suburb. It also extended south and east as far as the city limits, and I knew of several cases beyond the city limits east. It was never as bad in south or central Memphis as in that portion of the city north of where the first case was reported. My opinion is the infection was conveyed by the wind, which in summer and fall, with us, blows from the south to the portion of the city north of the infected district.

The number of deaths from yellow fever will never be definitely known, as proper official record for the city was not kept, and a number of deaths from the disease were reported as from other causes. And, moreover, for at least three weeks after the disease appeared physicians did not recognize it, or at least did not report yellow fever.

The number of deaths from September 14, the date it was first officially published, to November 9, is as follows, taken from the printed reports of the secretary of the Board of Health :

From September 14 to 30, inclusive.....	259
From October 1 to 31, inclusive.....	899
From November 1 to 9, inclusive.....	86
Total	1,244

The largest number of deaths on any one day occurred October 10, when 55 died.

There have been deaths from the disease reported since the 9th of November ; and there will, no doubt, be others even after this, November 18.

The report from the City Hospital from September 2 to October 31, inclusive, is as follows:

Number of cases admitted from September 2 to October 31, inclusive.....	169
Deaths from yellow fever.....	103

Number of cases in hospital October 31, 18. Of these, 13 are convalescent and 5 are under treatment.

(The above is taken from report made to the secretary of the Board of Health November 1.)

The deaths in the City Hospital, and also in the Walthall Infirmary, a temporary hospital established during the epidemic, are included in the report of deaths published by the secretary of the Board of Health for the whole city. This is as near as I can give the deaths at this time.

I am unable to give the number of cases that occurred in the city, nor will it ever be known. The misfortune was that there was no well-organized, paid board of health at that time ; our city was defective in its sanitary regulations, and there are no official records of a vital or sanitary character outside of the City Hospital prior to September 2. There is no doubt in my mind that yellow fever was brought here from the South early in August. But I am unable to ascertain when the first case occurred among the residents of the city. I think there is no doubt of its occurring after the 10th of August. Nor do I think there is any doubt of there having been deaths here among the residents of that portion of the city subsequently known as the "infected district" prior to September 1.

There were only four deaths of marine patients from yellow fever in the hospital during the epidemic, three white men and one negro. They have been reported in my official reports to your office, and were included in the general mortality report of the city.

I am, sir, most respectfully, your obedient servant,

G. B. THORNTON, M. D.

JOHN M. WOODWORTH, M. D.,

Supervising Surgeon U. S. M-H. S.

MOBILE, ALA., December 6, 1873.

SIR: In compliance with your letter, dated October 24, relative to yellow fever in Mobile this season, I have the honor to submit the following:

The published report of the health-officer to the Advisory Board of Health—an extemporized organization, created to assist the city physician during the prevalence of the epidemic—is so full and complete for the period prior to November 1, that it will not be necessary to do more than summarize my own observations and experience of the epidemic, and to complete the table of cases by adding those which occurred subsequent to October 25.

The following table gives the dates of occurrence, and number of cases on each day, with the result of the cases:

Date of occurrence.	No. of cases.	Result.		Date of occurrence.	No. of cases.	Result.	
		Died.	Recovered.			Died.	Recovered.
August 21.....	1	1	.....	October 13.....	2	.....	2
September 11.....	2	1	1	14.....	1	1	.....
15.....	2	1	1	15.....	1	.....	1
17.....	2	2	.....	16.....	1	1	.....
18.....	1	.....	1	21.....	5	2	3
20.....	1	1	.....	23.....	1	1	.....
22.....	3	1	2	25.....	1	1	.....
23.....	1	.....	1	November 2.....	1	1	.....
25.....	1	1	.....	3.....	1	1	.....
26.....	5	1	4	8.....	2	1	1
30.....	1	1	.....	17.....	1	1	.....
October 1.....	2	1	1	23.....	1	1	.....
4.....	1	.....	1	27.....	1	.....	1
5.....	3	2	1	29.....	1	1	.....
6.....	1	1	.....	Total.....	50	27	23
8.....	2	.....	2				
9.....	1	1	.....			

The first case of yellow fever that appeared in Mobile was that of Owen McKenna. The facts in this case, as reported by Dr. Hicklin, the health-officer, are as follows: "A resident of Mobile the past three years, unacclimated; went to New Orleans on the 16th of August and returned the following day, 17th. He was taken sick on the 21st, and died on the 26th day of the same month. His attending physician pronounced it yellow fever. He resided on Hamilton street, southeastern portion of the city, and was the only case known to me, save Dr. F. M. Stone, who sickened and died of the disease in the month of October, that occurred in that section of the city during the entire prevalence of the disease." Dr. H. states that McKenna's death was before the date of his appointment to office, and he was not apprised whether any disinfection of the premises was made. It may here be stated that the chief duty of the health-officer to the Advisory Board was to superintend the disinfecting of all sections and premises where the disease appeared, the physicians being requested to report every case which occurred under their charge at the earliest moment possible.

The next case came directly from Shreveport via New Orleans. He resided above Shreveport, and in passing that city remained all night. On the morning of September 11 he was found on the wharf, under an old shed, by a policeman, who conveyed him to the hospital, by order of the city physician, who had seen and examined the case, and pronounced it to be yellow fever; died on the 13th. On the way to the hospital he was supported in the conveyance by the said policeman, who together with his son were both taken sick the 15th and 18th, respectively, on Spring Hill road, in the north-western portion of the city, immediately in the district which afterward became the "infected quarter," and from which the disease spread in that portion of the city.

In the hospital where this second case was carried and died there have been eight cases treated, including his, all of which originated therein, none being admitted from outside save that. Of this number five died and three recovered.

The disease was introduced into the marine hospital in the following manner: On the 11th of September Robert Smith, an Englishman, long a resident of Mobile, was admitted with what was recorded as intermittent fever, a diagnosis based upon the periodicity in the occurrence of two successive chills followed by fever. The first chill took place on the 10th of September, the day prior to his admission. These chills recurred on the 12th, 13th, and 14th, after which his fever became continuous and the

complication of another disease, yellow fever, was recognized. This patient had been under treatment a few months before for malarial fever. Investigation of his case furnished the following facts: He was employed as a watchman on the steamer *Emma* No. 2, that had been lying for a considerable time at the end of the wharf from which Dixon, the Shreveport case, was taken. From idle curiosity Smith visited Dixon under the shed, a short distance from the steamer, and assisted in placing him in the conveyance for the city hospital. This was on the morning of the evening Smith took sick, and doubtless was the source and time of his infection. This was a typical case of the existence of two distinct morbid poisons operating at the same time in the system. After a severe illness of seventeen days, and the occurrence of black-vomit on the third day of the fever, reckoning from the date of its recognition, this patient made a fair recovery.

At this time thorough disinfection was instituted and maintained in and around the hospital-buildings for a period of six weeks, under the supervision of the health-officer, acting under the directions of the Board of Health, and to whose opinion as to its efficacy in its employment generally throughout infected localities I shall have occasion to refer further on.

Case 29.—On the 8th of October O. L. Crampton * was taken ill of yellow fever at this hospital, where he was quartered, and after an illness of nine days recovered. The infection, doubtless, was in this instance from the Englishman, Smith, as the prevailing winds were, up to this time, from the north and east, carrying the germs of the disease from the already infected buildings, the city hospital and infirmary, to the south and west. It is not known that exposure from any other source could have happened, as every precaution had been observed in protecting against it by confinement to the building after certain hours in the evening and before certain hours in the morning, thereby escaping the moist, and consequently dangerous, night air that existed almost constantly through the months of October and November. It may be well to state, in explanation of the situation of the hospital buildings mentioned, that the marine hospital is situated on Saint Anthony street, north side, between Bayou street on the east, and Jefferson street on the west, occupying, with its grounds, an entire block. The city hospital covers the greater portion of the adjoining block to the west, facing on Saint Anthony street; and the infirmary, the block directly opposite the city hospital, facing likewise on Saint Anthony street. These squares, together with the one opposite the marine hospital, comprise about eight square acres and cover what was designated the first and essential "infected section," upon which the Board of Health directed all its energies in a rigid quarantine and thorough disinfection.

Case 35.—Mr. C. C. Colton, employed in the custom-house of this city as hospital and enrolling clerk, was attacked with yellow fever October 16, and died in this hospital October 20, a victim of the most malignant type of the disease. Mr. Colton was from the northern part of this State, where he had engaged in "planting" for the past six years; had been a resident of this city five months, and consequently unacclimated; knowing the danger he would incur in remaining in the city constantly, he had determined upon the risk, and to remain until such a time as it should be pronounced an epidemic. By invitation he made this hospital his residence, as a guest of the surgeon in charge; and though the true character of the disease was made known to him by the attending physician to case 29, he chose to remain and nurse said case, from which he took the disease, with the result as above mentioned.

From case 29, three seamen, 31, 32, and 34; a colored servant, gardener to the hospital, (case 37,) and the steward of the hospital, (case 36,) took yellow fever and recovered. Two of the seamen had just arrived from New York City; discharged from their ship sick; applied to the hospital for treatment, and accidentally entered the room in which case 29 was sick. The third seaman had been an inmate of the hospital for some time with a chronic disease, and was exposed in like manner; and the steward and servant assisted in case 29.

* The surgeon in charge.—W.

It is a noticeable fact that only those persons directly exposed to case 29 were attacked, and that others throughout the building escaped, having no access to the rooms of those sick of the fever. Every precaution was taken to isolate all those immediately exposed, and to prevent a spread by saturating the atmosphere of the wards, and throughout the building, with carbolic acid and chloride of lime.

The cases occurring in November were mostly those who, as refugees, had remained absent from the city during the existence of quarantine, and returned too early, though advised so to do by their physicians, basing their opinions on the action of the Board of Health in recommending the raising of quarantine, and the return of citizens to the city. Doubtless the greater rate of mortality among this class over those that remained in the city was due to facts well known to the profession. Two of these returned refugees died in houses that had remained unoccupied and unopened during the season.

The means employed to arrest the course of the yellow fever were the energetic, thorough, and liberal use of carbolic acid throughout the vicinity of the infected district and premises having fever cases. The winds, with an average mean temperature of 78°.5, continuing to prevail from the north and east during most of the season, carried the disease to the south and west, leaving the "primary infected section," a small corner in the northeastern portion of the greater area, that finally became known as the "infected district." The efforts to prevent the yellow fever from extending beyond this district met with deserved success; and the course pursued by the Board of Health of New Orleans, in the epidemic of yellow fever of 1871, in "stamping out" the disease, was strictly pursued here. The health-officer of Mobile states in his report that, during a period commencing September 18 and ending October 20, he "had used over a thousand gallons of crude carbolic acid and nearly three thousand pounds of sulphate of iron. Chlorine gas, used for the purpose of fumigation in the houses, was generated by the action of sulphuric acid upon the black oxide of manganese and chloride of sodium." In concluding his report Dr. Hicklin remarks, "that the result of their labors," speaking of the Board of Health of Mobile, "is too apparent to the world, when the mortuary record of the past two months is consulted, to permit a doubt to remain in the mind of any honest individual as to the good they have done." And further, "New Orleans and Mobile were at the beginning of the season in close, almost daily, communication with Shreveport, Memphis, Pensacola, and Montgomery. The two first, New Orleans and Mobile, began an early and systematic use of disinfectants and fumigations. They escaped, or hedged in the disease, and no epidemic resulted, notwithstanding cases were brought into the midst of each of them from the hot-bed of the disease, Shreveport."

In summing up the facts in the history of the disease in Mobile this year, it would appear that the theories advanced as to the nature, cause, and prophylaxis of yellow fever, by Dr. C. B. White, of New Orleans, in his annual report for 1871, based, I presume, chiefly upon his experience in that epidemic, have received another valuable support in like results effected in Mobile this season.

I am, sir, very respectfully, your obedient servant,

O. L. CRAMPTON,

Surgeon-in-charge U. S. Marine Hospital, Mobile.

JOHN M. WOODWORTH, M. D.

Supervising Surgeon U. S. M-H. S.

CAIRO, ILL., November 8, 1873.

SIR: In response to your request of the 25th October for the facts concerning the cases of yellow fever at this place, I have the honor to state that, during the summer and even after the disease was raging as an epidemic at Shreveport, the Illinois Central Railroad Company continued to receive cotton direct from that place and from Memphis. This cotton and other freight was received on board the transfer wharf-

boat, conveyed up the bank to the depot and shipped east. Considerable freight from below, including cotton, was also received at Captain Phillips's wharf-boat. At the same time the work of filling in and constructing a new wharf was being carried on in the immediate vicinity of the transfer wharf-boat, which gave employment to thirty or forty teams hauling in the earth from near the Mississippi River.

On the 1st of September I received two cases of yellow fever at the hospital from the steamer *Mary Alice*; on the 10th, two cases from the tow-boat *B*; and on the 24th, one case from the *Keystone*. Four of these cases were fatal, being in the stage of collapse when brought in. The fatal cases all had black vomit, with more or less general hemorrhage from the mucous membranes, and the *post mortem* appearances answered the descriptions given in the books—orange-colored or golden-yellow liver; mucous membrane of stomach highly inflamed; shrunken and almost empty gall and urinary bladders, etc.

The first fatal case among the citizens did not occur until September 13, when the cashier of the Illinois Central wharf-boat died. Then followed in rapid succession several other cases among persons employed in the same locality. Next, the clerk of Captain Phillips's wharf-boat sickened, and died on the fourth day. His nurse, a colored woman, who did the washing of his clothing, took the disease and died one week after; and a child in the house where the nurse died also took the disease, but recovered.

There were in all thirteen deaths out of about three times that number of cases of yellow-fever among the citizens, making, with the four deaths among those landed here with the disease, seventeen deaths from yellow fever between September 1 and September 25.

It was especially noted that the disease was confined to persons employed about the river and the localities above described; the four or five exceptions which occurred being in the families of men who were thus employed.

The disease did not make its appearance among the citizens until after the first two cases were received at the hospital from the steamer; and no new fatal cases occurred among citizens after the establishment of quarantine.

Very truly,

H. WARDNER.

JOHN M. WOODWORTH, M. D.,

Supervising Surgeon U. S. M-H. S.

LOUISVILLE, Ky., December 2, 1873.

SIR: I send you herewith, as requested, report of cases of yellow fever occurring in this city during September and October, 1873.

As there were no cases of this disease among the patients admitted to the Marine Hospital, this report is compiled from the reports of the attending physicians, who have been good enough to place the same at my disposal. I desire, in this connection, to acknowledge the receipt of such information from Drs. Fenner, Hewitt, Given, Leber, and Blackburn of this city.

1. The dates of the first and last cases of yellow fever in Louisville, during the year 1873, were September 22 and October 15, respectively.

2. The total number of cases in the city, 10.

3. The mortality, 5.

4. The mode of introduction was by rail in all cases, except one by boat, and all were from Memphis, Tenn.

5. The local influences here were all favorable to recovery, being among the better class of people, and no spread of the disease was manifested.

I am, sir, very respectfully,

P. H. BAILHACHE,

Surgeon U. S. M-H. S.

JOHN M. WOODWORTH, M. D.,

Supervising Surgeon U. S. M-H. S.

[Dr. D. P. FENNER, in charge of marine-hospital patients at Shreveport, La., has undertaken the preparation of a detailed report of the epidemic at that place, which it was hoped to have received in time for publication with the foregoing; but sickness and other causes have delayed its completion. The following statement, in the absence of that report, is compiled partly from Dr. Fenner's letters and partly from medical journals and other sources deemed trustworthy.]

The insanitary condition of Shreveport had attracted attention for some time previous to the outbreak of the epidemic, and was made a subject of much complaint by physicians and others. There was the usual absence of hygienic precaution and police; the accumulated filth of the city lay untouched for months; the streets were neglected and uncleaned; the sewerage was so defective that the refuse of hotels and boarding-houses was poured out upon the surface of the ground, and the whole city was enveloped in a disgusting odor day and night.

Prof. Joseph Jones, M. D., of New Orleans, in commenting on this subject, says: "Such is said to have been the sanitary condition of Shreveport, at the time of the breaking out of the epidemic; and if it be possible to generate in this latitude yellow fever by the combination of filth, heat, and moisture, the conditions were certainly present for the origin of the pestilence *de novo*." The spring and early summer seemed to have been as healthy as usual. The malarial fevers of the region did not attract special attention, either by their numbers or severity; but as the summer advanced, the continued heat of June and July, and the insanitary condition above noticed, aggravated their severity and they began to assume a more and more malignant character.

During the latter part of July, what has been characterized as a "stampede" took place among the sailors and river-boatmen at New Orleans, and numbers of them shipped on Red River packets, which were plying continually from that port to Shreveport, the navigation at that time being very good. On the 12th of August, according to Dr. Fenner, occurred the first case of yellow fever, of which he gives, substantially, the following details: Newton Walker worked and slept on the levee in a store which was closed, the firm having gone into liquidation; took his meals at a place next door in an eating and lodging-house, a common resort of the lower class of boatmen and of that class alone; was attacked with the fever on the night of August 12, and was first seen by the doctor on the 18th, at his (Walker's) brother's house, two and one-half miles from the city. Two children, who had not been away from the house, subsequently sickened and died, at the end of three and four days respectively, with all the phenomena of yellow fever well marked; the whole family were rapidly attacked and five or six died.

About the 15th of August several suspicious cases of illness among the boatmen were received in hospital; but as none of them died and there were no rumors of yellow fever at the time, they were diagnosed as cases of remittent fever. On the 19th of August it was reported that three men had fallen dead in front of the Mechanics' Exchange, on Texas street. Upon subsequent inquiry it proved that these men had been wandering about, sick; two of them lay down and died, and the other expired before he could be got to the hospital.

Yellow fever began to be now openly talked of. On the 22d a death occurred which was pronounced to be "without doubt" from the dreaded disease, and on the 25th two cases developed in a private family immediately across the street from the hospital referred to, and one case in Dr. Fenner's house, which adjoins the hospital. Cases also developed about the same time in Texas street, in and around boarding-houses used by steamboat-men; and in all places frequented by river-men the fever appeared early and spread thence as from centers of infection. In about ten days after the disease was recognized and correctly diagnosed, say, about the 1st of September, it had become epidemic and was followed by a general exodus, so that, it was estimated, the population was reduced in a brief space at least 50 per cent. On the 15th of September the epidemic reached its climax, the deaths on that day numbering 39; but for many days after the number fluctuated between 15 and 20; whole families were swept away

and commercial firms, partners and clerks, were literally blotted out of existence. About the 17th of September the fever began to attack the suburban population and appeared in the outskirts of the city, at Marshall, Longview, Greenwood, Summer Grove, Bossier, Minden, and throughout Caddo Parish generally.

There was a decided diminution in the average of deaths per day after the 24th of September, and on the 30th the decrease in the number of cases in the city marked the abatement of the epidemic. During the month of October the fever slowly declined, and intermittent fever and dengue made their appearance.

The following statistics of the epidemic are mere approximations, which may be corrected upon the publication of subsequent reports: Population, in July previous to epidemic, 9,000; during epidemic, between 4,000 and 4,500; of these 1,500 were negroes. Number of cases of yellow fever, 3,000; number of deaths, 759; of these about 120 were negroes. Mortality about 25 per cent.—W.]

SUMMARY OF THE YELLOW-FEVER EPIDEMIC OF 1873:

Showing the localities, number of cases, and mortality, as reported by the Surgeons of the United States Marine-Hospital Service.

Locality.	First case ap- peared—	Last case ap- peared—	Total cases.	Total deaths.	Mortality, per cent. of cases.	Cases in ma- rine hospital.	Deaths in ma- rine hospital.	Mortality, per cent. of cases.	Remarks.
New York, N. Y. . .	May 23	Oct. 30	69	18	26.1	5	3	60.0	See report Dr. Heber Smith, ante, p. 101.
New Orleans, La. . .	July 4	Nov. 18	394	225	57.1	24	13	54.2	Introduced by Spanish bark <i>Valparaiso</i> , from Havana.
Pensacola, Fla.	Aug. 3	Oct. 15	600	62	10.3	40	8	20.0	Supposed to be by desert- ing seamen from ship <i>Gold- en Dream</i> , from Havana
Memphis, Tenn.* . . .	Aug. 10	Nov. 9	4,204	1,244	29.5	9	5	55.5	Brought by a traveler via Shreveport.
Shreveport, La.	Aug. 12	Nov. 10	3,000	759	25.3	7	3	42.8	By river-boatmen from New Orleans.
Mobile, Ala.	Aug. 21	Nov. 29	50	27	54.0	8	1	12.5	Brought from New Orleans.
Cairo, Ill.	Sept. 1	Sept. 25	43	17	39.5	5	4	80.0	By river-boatmen; no cases after establishment of quarantine.
Louisville, Ky.	Sept. 22	Oct. 15	10	5	50.0	.....	.....	.....	All from Memphis, Tenn.; nine by rail, one by boat.
Totals. . . . .	.....	.....	8,370	3,357	.....	98	37	.....	The general hospital mortal- ity of yellow fever is great- er than that here shown for marine hospitals, which latter is unusually favora- ble, considering the class of cases, and the fact that the mortality list is swollen by patients landed and carried into hospital already moribund.
Average mortality, per cent. of cases.	.....	.....	.....	.....	28.16	.....	.....	37.75	

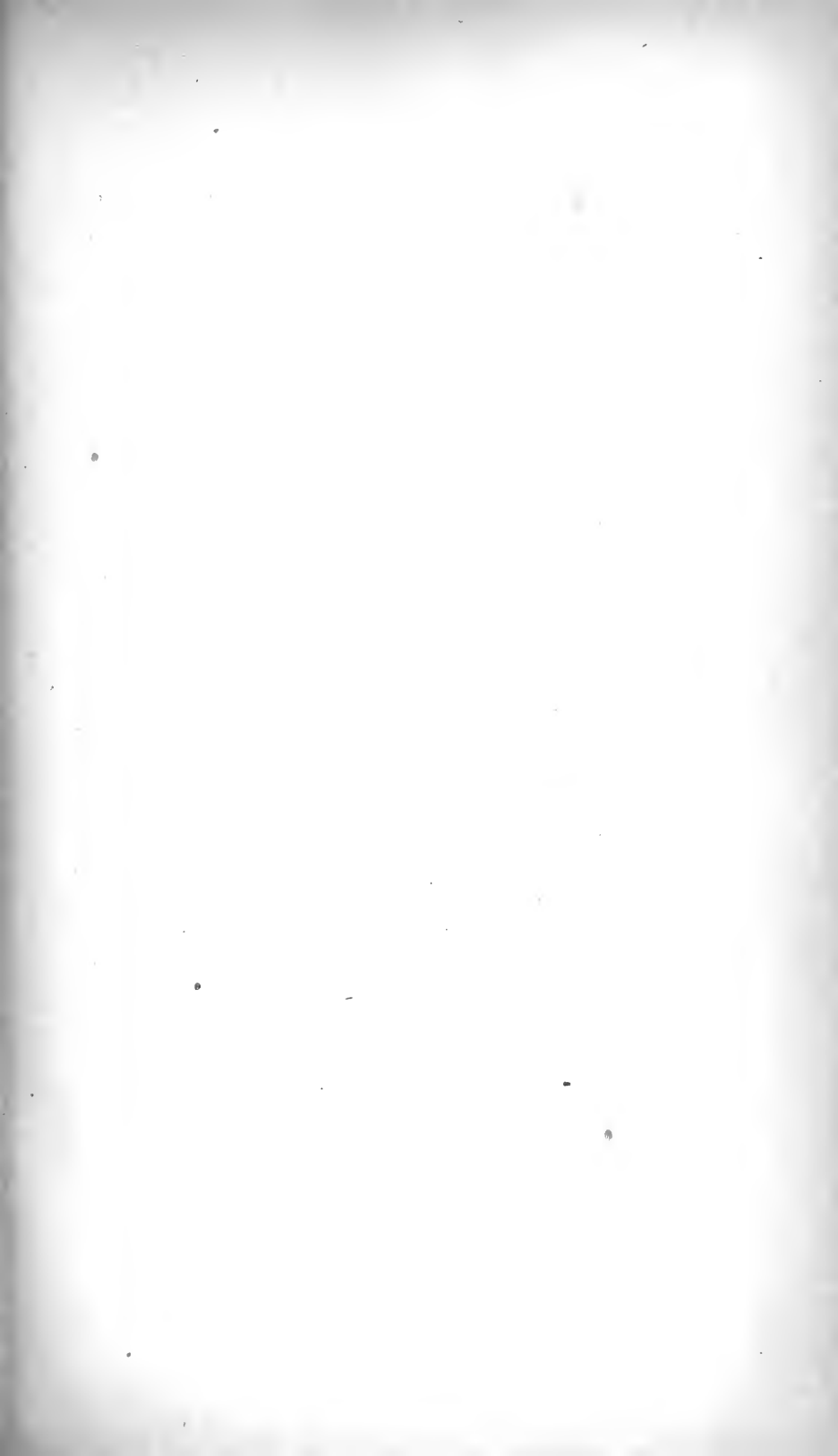
* Record for Memphis imperfect; the number of cases is not known, even approximately, while the number of deaths above given includes only those reported between September 14 and November 9, notwithstanding it is known that deaths occurred both before and after these dates. The number of cases here given is based on the average proportion of cases to deaths at the other seven places, and is certainly not over, but probably largely under, the actual number. It is believed that the same stric-
tures would apply with equal force to the statistics of Shreveport.

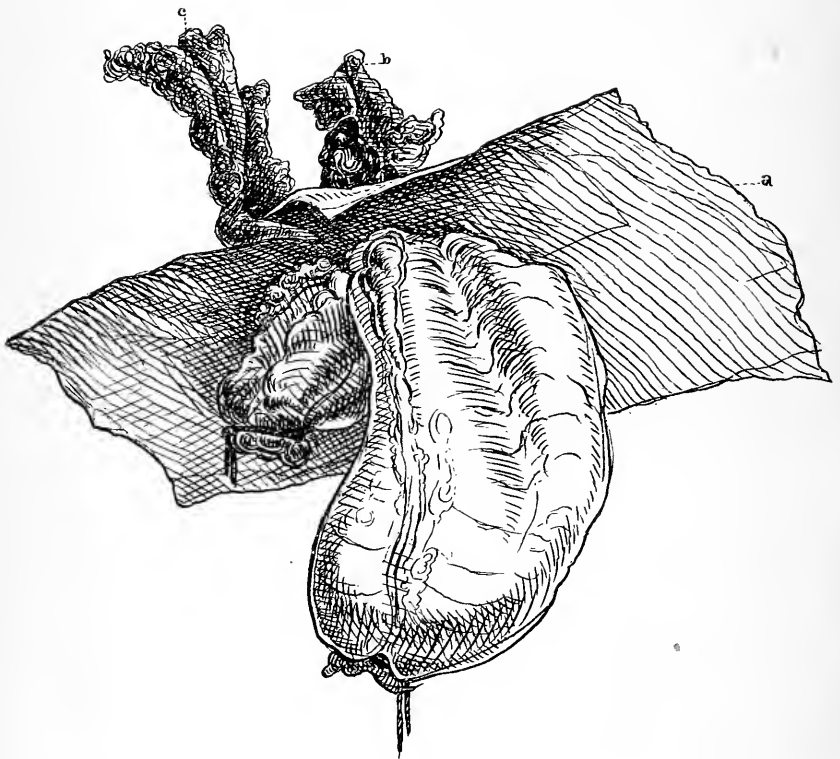
REPORT

OF A CASE OF

DOUBLE DIAPHRAGMATIC RUPTURE AND HERNIA

S M H





DOUBLE DIAPHRAGMATIC HERNIA.

- A. Diaphragm, showing inferior surface.
- B. Hernia of large intestine and omentum.
- C. Hernia of small intestine and omentum.

D.—CASE OF DOUBLE DIAPHRAGMATIC RUPTURE AND HERNIA.

Reported by THOMAS T. MINOR, M. D.,
Surgeon United States Marine-Hospital Service, Port Townsend, W. T.

ON the morning of June 28, was called to see James Testor, seaman, on board United States revenue-cutter *Reliance*. Found him suffering severe pain, of a colicky nature, in the region of the umbilicus, exacerbating at intervals. The pain had come on suddenly. His pulse was slightly accelerated. There was no vomiting.

Administered from my pocket-case two grains sulphate of quinia, with one-fourth grain sulphate of morphia, and in a few minutes he was apparently much better.

On the evening of the same day he was brought to the hospital. His symptoms of colic had entirely disappeared, and were replaced by those of an acute attack of pleurisy. Sharp pain located in the left side, about the eighth rib, impaired respiration, accompanied with that "catching" of breath peculiar to every well-marked case of acute pleurisy. There was but little cough, the pulse was rapid and full, and his skin covered with perspiration. He was put to bed, and one-fourth grain sulphate of morphia injected hypodermically. After getting quiet he received:

R Hyd. sub. mur.
Jalapa pulv. aa.....gr. x.
Pulv. ipecac co.....gr. v.

M.

During the night he received at intervals of three to four hours, a powder consisting of camphor, opium, and ipecac, each one grain.

The next day, June 29, he felt better. In the morning he received one-half ounce of Rochelle salts, and at noon one-half ounce castor-oil. In the afternoon he had a copious discharge from the bowels, after which he breathed more easily, but the severe pain continued.

On the 30th, Monday, he seemed to be better. Upon auscultating and percussing the left side of the chest, resonance on percussion was readily obtained over the seat of pain, while almost all other portions of the corresponding cavity gave extreme dullness, and throughout the entire (left) lung the respiratory murmur was absent. During the day the respirations became more regular, but the pain still remained. The powders of camphor, opium, and ipecac were still continued. Upon visiting him in the evening he was found lying upon his well side, and seemed to be more comfortable in that position than any other.

About one o'clock on Tuesday morning, July 1, he was suddenly seized with nausea and vomited slightly for the first time. He got on his feet

for a few minutes, then laid down, and was soon after discovered to be dead.

Post mortem examination sixteen hours after death. The right lung and right pleural cavity were found in a healthy condition, as was also the heart, except that it was displaced considerably to the right. The left lung was completely collapsed; pieces cut from different portions of it would not float in water. The corresponding pleural cavity contained about five pints of sero-sanguineous fluid. There was a *double rupture of the diaphragm to the left of the œsophageal opening and double hernia of intestine and omentum*. Anteriorly the large intestine and a portion of the greater omentum were projected through the wall of the diaphragm into the left pleural cavity. Strangulation of this hernia had occurred and perforation of the intestine. Posteriorly, through another entirely distinct rupture of the diaphragm, was a hernia of small intestine and omentum.

The abdominal viscera were examined. The liver was enlarged; the greater omentum was drawn far above its usual position, and there were signs of inflammation, particularly along the large intestine.

The previous history of this case, so far as can be ascertained, is as follows: Before shipping on the *Reliance*, Testor was employed on a merchant vessel at Seabeck, W. T. Ten days previous to his death, while loading ship, he was engaged in shoving heavy plank up a steep incline, bearing their weight full against the abdomen. The plank were so heavy that sometimes he required assistance, and the gang-way being narrow another sailor would help by pushing him from behind, he still receiving the full weight against his bowels. While thus engaged he felt a sudden snap inside, and, feeling sick (faint,) had to give up work. In a few days, having, as he supposed, entirely recovered, he reshipped in the revenue-cutter one week before his death.

[THE practical interest of this case for the medical officer of the Service lies rather in the direction of prophylaxis when phrenic hernia is diagnosed, since it is doubtful if any surgical interference could ever be of avail, although operations have been suggested by some writers, (Guthrie and others.) Exclusive of those among military men—from gun-shot, sword, and bayonet wounds—of the ninety-odd cases recorded, the proportion of sailors who have been the subjects of this injury is as four to five of all other occupations, falls from masts and other accidents incident to a sea-faring life readily accounting for this preponderance.

Though detected before death, according to Dr. Bowditch, of Boston,* in only two instances—one by Mr. William Lawrence, of London, at St. Bartholomew's, and the other by Dr. Bowditch himself, at the Massachusetts General Hospital—there appears to

* "Mr. Lawrence, so far as I can discover, is the only person who ever (before our case at the hospital) recognized the hernia by these signs, † or, as I may add, by any other, save by the morbid appearances after death. It may have been suspected but never definitely diagnosed."—*A Treatise on Diaphragmatic Hernia*. By HENRY I. BOWDITCH, M. D., &c., p. 50.

The reference † is to a foot-note: † "London Lancet, September 5, 1835." But the case detailed in the Lancet of that date (p. 751) cannot be the one Dr. B. refers to; for after detailing the history of the case, its termination in death, and the *post mortem* appearances—which revealed "a large portion of the intestines, the whole of the omentum, a great portion of the spleen, and the entire pancreas, so completely occupying the left side of the chest that the lung was compressed to the size of a man's fist," &c.—the report closes as fol-

be, aside from want of familiarity owing to the infrequent occurrence of this form of hernia, no reason why the diagnosis may not be made with tolerable accuracy in any case where the attention has been awakened, as by the history of a previous severe injury of the trunk; and the frequent occurrence of such injuries to sailors makes it peculiarly the duty of the marine-hospital surgeon to carefully scrutinize the condition of the thorax and abdomen of every patient coming under his care who has been thus injured at any time, no matter how remote. For, although it is true, as above stated, that only some ninety-three or four cases of diaphragmatic hernia are to be found recorded since 1610, there can be little doubt that its occurrence is much more frequent than this would seem to imply.

It is probable, also, that so far from rupture of the diaphragm, and consequent hernia of the abdominal viscera into the thoracic cavity, being speedily, or even "generally fatal," * that the chief risk arises from its difficulty of detection; and that what is true of all herniæ is substantially true of this form, viz, that a hernia, if properly managed, is not immediately dangerous to the patient; does not materially affect his health, nor diminish his enjoyments; but it is, nevertheless, a source of constant danger, since violent exercise, sudden exertion, imprudence in diet, or exposure to atmospheric vicissitudes may bring it from a perfectly innocent state into a condition which frequently proves fatal.† That these propositions are at least plausible is believed to be shown by such cases as the following:

A carpenter, thirty-nine years old, fell from a considerable height; at the end of six months was able to resume his ordinary occupation, though suffering from difficulty of breathing, dry cough, pain on the left side of the chest, and frequent nausea. Fifteen years after, fell from a height of twenty feet, broke the seven lower ribs on the left side, and died three days after. The stomach and transverse arch of the colon were found in the left pleural cavity, having passed through a round opening, two and one-half inches wide, in the tendon of the diaphragm. The omentum adhered to the edge of this opening on the thoracic, and the spleen on the abdominal side of the diaphragm, the great curvature of the stomach was turned upward towards the mediastinum, and the arch of the colon was adherent on one side to the small curvature of the stomach, and on the other to the diaphragm.‡

The steward of a ship between thirty and forty years of age, came under treatment for agonizing colic and vomiting; bowels became costive, stercoraceous vomiting ensued, no stools could be procured, and death followed in fifteen days. On *post mortem*, in the lower part of left pleura was found the whole omentum, perfectly condensed, which had passed through the tendinous portion of the diaphragm, pulling up the large curvature of the stomach, which, with the transverse arch of the colon distended to three times its natural size, was adherent to the left side of the diaphragm. The whole was attached by firm and old adhesions to the margin of the orifice in the diaphragm, in which a portion of the colon was also engaged, and firmly constricted. Some years previous to death this man had been seriously wounded by a broad-pointed knife, which penetrated the body on the left side between the fifth and sixth ribs to a considerable depth, a portion of lung protruding from the wound. After recovering from

lows: "Mr. L. again alluded to the difficulty of diagnosis in this case, though, he remarked, the fixed pain of the side, the change of situation of the heart, and the arrested respiration in the left side, might perhaps have led to a conjecture of the nature of the disease."

That Mr. Lawrence certainly did not so conjecture in this case is further shown by the remark in the fifth edition of his classical work on *Ruptures*, (p. 628,) published in 1838, three years after the above: "Among the numerous recorded instances I believe that there is not one in which the nature of the malady was even conjectured before the patient's death." So that, unless Dr. Bowditch refers to a subsequent case of Mr. Lawrence's which I have been unable to find, the credit of being "the only person who ever recognized" a phrenic hernia before death must be added to the other laurels of the eminent surgeon-physician of Boston.

* DEVERGIE, *Médecine Légale*, vol. ii, p. 147.

† LAWRENCE on *Ruptures*, p. 2.

‡ DESAULT, *Journal de Chirurgie*, tom. iii., art. 2, quoted by LAWRENCE, *op. cit.*, p. 626.

this injury he had been subject to spasms in the region of the stomach, but had, nevertheless, made several voyages to India as steward of a ship.*

A patient, fifty-four years of age, was received into the Bristol Infirmary with a fracture of the leg which proceeded favorably, until on the seventh day delirium came on with prostration of the vital powers, when death speedily ensued, the symptoms at last resembling enteritis. He had received a violent blow on the back, thirty-eight years before, from the fall of a tree, since when he had suffered from asthmatic dyspnoea, dyspepsia, and constipation. He had, however, always been able to follow his usual employment. After death the whole stomach, nine feet of the small intestines, four feet of the colon, and the omentum, were found in the left pleural cavity, the omentum being connected to the pleura near the clavicle by old and firm adhesions. These viscera had passed through a circular aperture in the diaphragm three and one-half inches in diameter, situated in front and to the left of the œsophageal opening.†

A sailor aged forty was admitted into Guy's Hospital for treatment for necrosis of ankle; six months previous had fallen on the deck of a vessel from a great height, breaking some ribs and severely injuring his ankle. Three months after admission he died, and on examination two-thirds of the left pleural cavity, or nearly one-half of the entire capacity of the chest was found to be occupied by the distended stomach and a long curve of the arch of the colon, which had protruded through an aperture in the diaphragm. The omentum was strongly adherent in one or two places to the margin of the aperture, which was of old standing, its edges being opaque, yellowish, firm, and even. The deceased had stated that many years previous to his admission to hospital he had met with an accident by which he had fractured some of his ribs on the left side; and Mr. Alfred S. Taylor, in commenting upon the case, remarks that, "from the man's statement, he must have survived the only accident which could have produced the rupture at least nine months. The perfect degree of cicatrization about the aperture showed that it must have been of very long standing."‡

A porter in a warehouse died of typhoid pneumonia in Saint Thomas's Hospital, and on post-mortem, the left pleural cavity was found to contain the stomach, spleen, a large loop of the transverse colon, and nearly the whole of the small intestines; in fact, "the only portions of the alimentary canal which were not in the pleural cavity were the lower part of the ileum, the cæcum and ascending colon, and sigmoid flexure." The stomach and transverse colon were firmly adherent to the parietes of the thorax and to the thoracic surface of the diaphragm, while the ileum and ascending colon were similarly attached to its abdominal surface. The man had been crushed between the buffers of two railway carriages or engines more than two and a half years previously, and attributed his subsequent suffering, from pain in the left side of the abdomen, shortness of breath, cough, and expectoration, to this injury.§

From the foregoing it seems clear that hernia of the most astounding proportions may exist for many years without seriously affecting the patient's health, or even his usefulness within certain limits, so long as strangulation, primarily, and such diseases as involve the respiratory and digestive organs, be averted. Hence the importance of determining when such a hernia exists, and of then prescribing the necessary precautionary measures.

Among the more prominent physical signs of a protrusion of the abdominal viscera into the thoracic cavity are, (1) cardiac palpitation to the right of its normal location; (2) thoracic dullness or resonance in unusual regions on percussion; (3) the absence of respiratory murmur and the presence of borborygmi in the chest;|| (4) prominence and immobility of the affected side of the thorax.¶ To these may be added such symp-

* *London Medical Gazette*, vol. x., p. 43.

† *Ibid.*, vol. xii, p. 673.

‡ *Guy's Hospital Reports*, vol. iii, p. 363.

§ Dr. PEACOCK'S case, in *Transactions of the Pathological Society of London*, vol. xvii, p. 141.

|| LAENNEC, *Traité d'Auscultation Médiate*.

¶ BOWDITCH, *op. cit.*, p. 51.

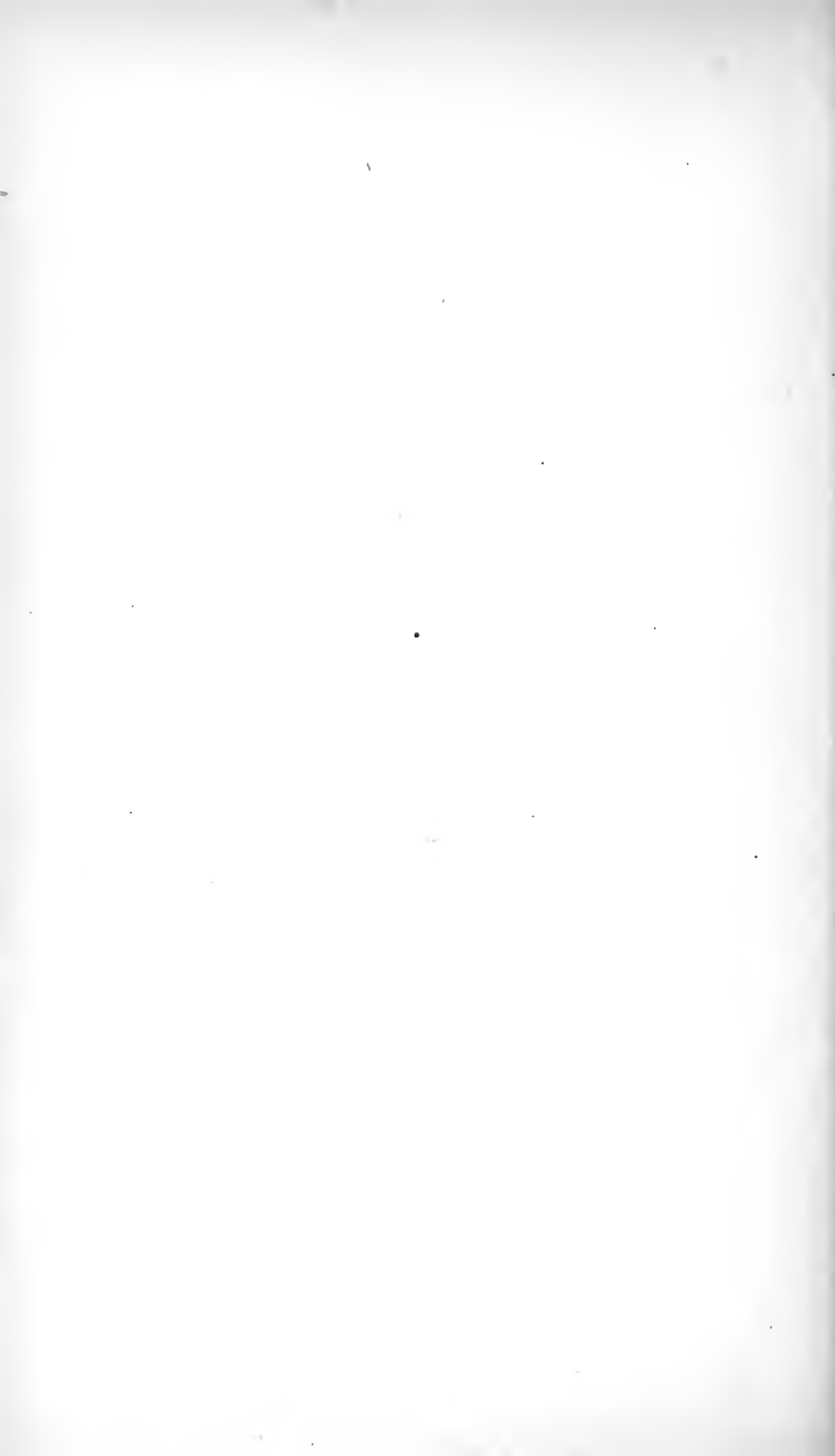
toms as liability to dyspnoea on exertion, pains in the hypochondria or chest, colics, costiveness, and frequent nausea and vomiting. When these physical signs and symptoms are permanent the viscera, it may be assumed, have become adherent in their abnormal position; but it occasionally happens that such phenomena are intermittent, their access marking the protrusions of the viscera, and their cessation being due to spontaneous reduction of the hernia.

The indications are obvious that persons so afflicted pursue the vocation of a sailor at great risk. It is more than probable that, had Testor's injury been diagnosed at the time of its occurrence on the vessel at Seabeck, assuming that the rupture occurred at that time, and had he in consequence been warned against violent muscular exertion, counselled to keep his bowels in a soluble condition, and to avoid such exposure as would lead to inflammatory diseases of the respiratory, and the digestive apparatus, he might have survived to the usual period of life.

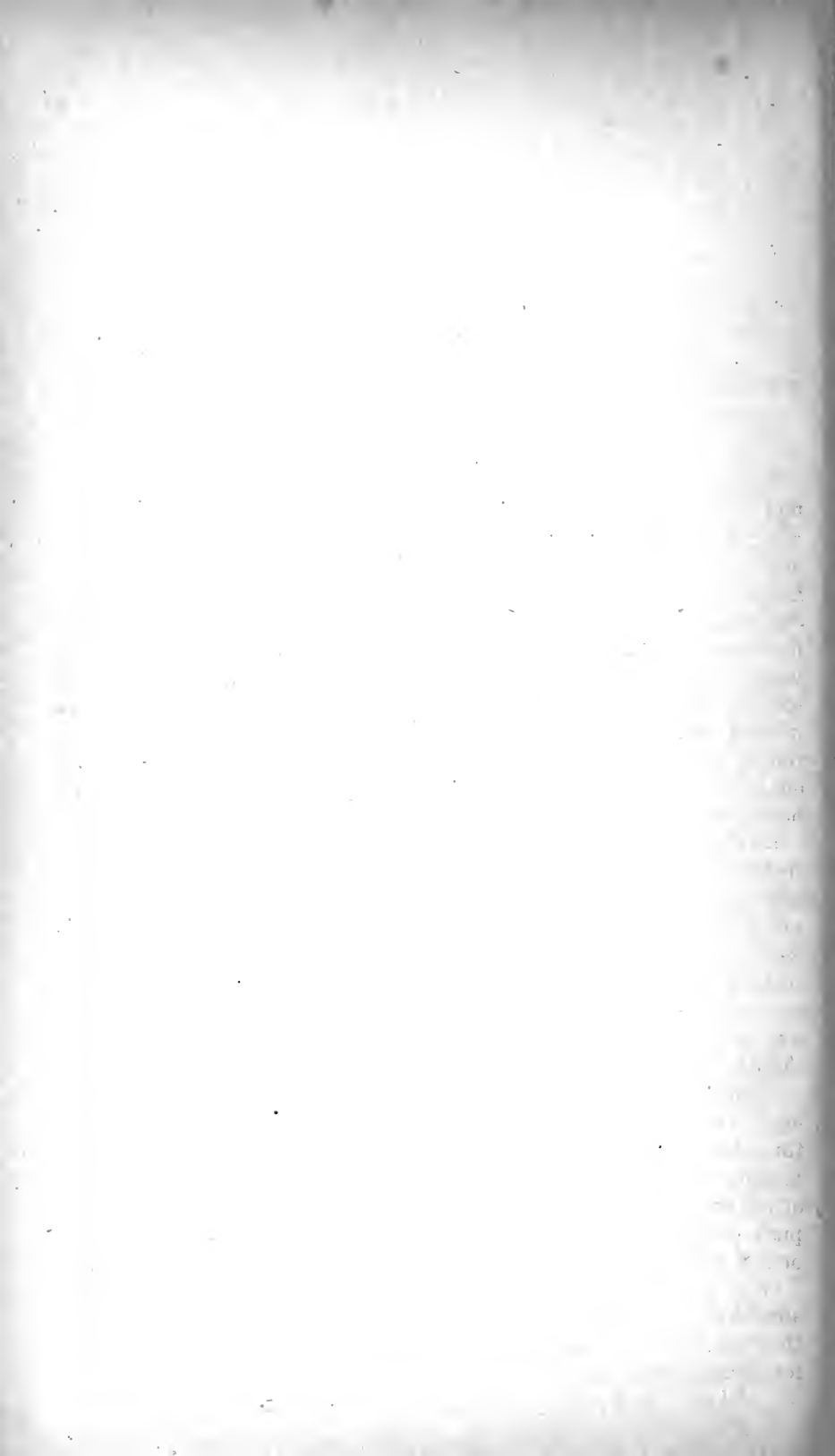
It may be added that in the details of cases of traumatic hernia which have been consulted, the rupture has generally been the result of a much greater amount of violence than is described in Dr. Minor's case; and at first blush this would seem to give the latter an important medico-legal bearing. Unfortunately, there is no record as to the condition in which the ruptured tissues were found at the *post mortem*; and the preparation having been dried and varnished, it was impossible to determine, on its receipt in Washington, whether the edges of the ruptured muscle were cicatrized or not. The "sudden snap inside," felt by Testor, may possibly have been the indication of the occurrence of the rupture; but, if so, the case is unique in the character and amount of the violence producing it. Velpeau cites the only case met with at all comparable to it in this respect. A young man of robust constitution, the patient of a M. Battalia, who furnished the history, died in a few hours with many of the symptoms of strangulated hernia caused, apparently, by a debauch and violent efforts in coition the night before; on *post mortem* the stomach, greater omentum, and part of the transverse colon were found in the thoracic cavity.* M. Battalia felt assured that the rupture was the immediate cause of death, notwithstanding that the cicatrix of a sabre-wound, received four years before, was found on the right side of the thorax; that the edges of the orifice in the diaphragm were hard and irregular; and that there were considerable peritoneal adhesions, especially to the liver.

The preparation from which the accompanying photograph was taken, has been deposited in the Army Medical Museum, medical section, No. 1199; and in the same collection are also to be seen preparations, No. 522, medical section, showing a hernia in which the stomach and a large portion of the greater omentum have passed through the oesophageal opening of the diaphragm into the thoracic cavity, with fatal result; and No. 1789, surgical section, consisting of several ribs, the stomach, a portion of the omentum, and the diaphragm, exhibiting a hernia of the entire stomach, through an old gun-shot wound of the diaphragm, death ensuing from strangulation. A full list of titles of the bibliography of the subject will also be found, in connection with the description of this last, on page 205 of the second part of the *Medical and Surgical History of the War*, now in course of preparation.—W.]

* VELPEAU'S *Operative Surgery*, Mott; vol. iii, ed. 1847, p. 701.



URETHRAL STRICTURES.



E.—STRICTURES OF THE URETHRA.

By C. N. ELLINWOOD, M. D.,
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With Notes of Cases by Drs. ELLINWOOD and O. L. CRAMPTON, Surgeon in charge United States Marine Hospital, Mobile, Ala.

STRICTURE of the urethra is a very common malady among seamen, a fact in itself sufficient to make its consideration an important one in the Marine-Hospital Service, and the more so since strictures are now submitted to a great many modes of treatment, probably because no method has yet proved entirely satisfactory. As is generally the rule with diseases for which many remedies are recommended, none is found to cure in all cases of stricture. It is treated in one hospital by internal urethrotomy; in another by external urethrotomy; in a third by injections of some sort; in still another by dilatation, continuous or occasional; while in some it is not treated at all beyond giving mere temporary relief by preventing retention of urine. So, too, in different countries the treatment is as various as in different hospitals; while the theories on which the treatment is based are as diverse among authors as is the practice among surgeons.

It is proposed to the corps of United States Marine-Hospital surgeons that a systematic effort be made, with the ample field we enjoy, to settle and determine, in the interest of our profession, as well as in the interest of humanity, these undetermined questions. If every officer in the Service would practice upon the best and most rational teachings in the surgical literature of this malady, and make the Marine-Hospital Bureau the receptacle of a concise statement of his experience, the one best way of treating every stricture of a given character would soon be determined.

My observations of this disease during the past year have been made upon two different classes of seamen, those making long voyages of three to twelve months, and known as "deep-water sailors," and those making short voyages on coasters and steamers. Seventy-five per cent. of all the cases of stricture admitted to the United States marine hospital at this port are from the former class, and about one-half of these, or 37.5 per cent. of the whole number admitted, had urinary fistulæ.

Only permanent strictures are here considered, and all the cases admitted were traced either to chronic urethritis on the one hand—and that generally from gonorrhœa or masturbation—or to direct violence, for cause. The urinary fistulæ were ordinarily traceable to the rude and

improper introduction of instruments, mostly in the hands of the seaman himself.

As a rule seamen do not seek hospital relief for a stricture until serious difficulty is experienced in urinating, so that we seldom see them at the commencement of the disease. But so far as I have yet been able to arrive at true histories of cases, urethral injections have had but little to do with their production, except in the case of strictures at or near the external meatus urinarius, which are frequently caused by wounding the mucous membrane with the syringe. Sometimes the long-continued use of such injections as keep up an inflammation of the urethra do, doubtless, cause strictures, but ordinarily the cause of the stricture is to be found in the continuation of the granular urethritis rather than in the remedy.

The mode of treatment adopted at this hospital during the past year has been, for all idiopathic strictures situated anywhere in the urethra beyond two and a half inches from the external meatus, by the "divulsion" method described by Gouley in his recent admirable book. We have sometimes found great difficulty in passing the conducting bougie through the stricture, but have never yet failed to get one or another kind of capillary bougie into the bladder; and we find that habitude in manipulating these delicate little instruments is overcoming many of the difficulties encountered in the beginning. The soft bougie of Leroy d'Étiolles answers the purpose best in the majority of cases; while the French elastic catheter, with a leaden stylet, proposed by Sir Henry Thompson, has been found in some cases to be of great utility in traversing a very tortuous urethra. We have had no accidents nor bad sequelæ to follow the use of the divulsor; a hemorrhage (quite profuse in two instances) and a urethral-fever followed in some cases; but these consequences speedily disappeared by rest and a few doses of quinine. In all the idiopathic strictures so treated we have succeeded in re-establishing the urethral canal, sometimes perfectly, so far as we could judge, but sometimes only partially through the patient growing impatient or deserting and preventing the necessary continuance of the treatment. It is, as yet, too early to speak confidently of the permanence of the cure by this method of treatment, but it is the most satisfactory of any yet adopted, so far as I have been able to follow the cases subjected to it.

Strictures at and near the external meatus have not been so successfully treated by this method, and when they exist with a stricture in the bulbous portion of the urethra, as they frequently do, I now commence the treatment by cutting from within through the constricting tissue, and then proceed to divulse the posterior stricture.

I append hereto brief notes of three cases of idiopathic stricture, and one case of traumatic stricture; reserving for the future the tabulation of them, when I shall have accumulated a greater number than I now have notes of.

NOTES OF CASES.

[Service of Dr. ELLINWOOD, San Francisco, Cal.]

No. 96.—*Stricture—Urinary fistula—Divulsion—Recovery.*—Chris. Nicholson; “deep-water” sailor; admitted February, 18, 1873, having dense fibrous constricting band around the urethra at three inches from external meatus, and another in bulbous portion, dating two and a half years back; also a urinary fistula at perineo-scrotal junction. February 18.—Passed a soft filiform bougie and followed it by the small-sized divulsor; operation was followed by slight hemorrhage and inflammation. February 23.—Repeated operation and injected the fistula with sol. iodine, (3i to fʒi,) with urethra dilated. March 5.—Repeated operation, using larger instrument. March 12.—Urine flowing entirely through urethra; repeated operation with the third-size Holt’s dilator. March 17.—Used largest size with but little pain and no hemorrhage. March 21.—Discharged, with no symptoms of stricture.

No. 113.—*Multiple stricture of spongy portion.*—Jno. Lynch, admitted to hospital July 26, 1872, with four strictures of urethra, situated between a point three inches from external meatus and the membranous portion; the urethra hard and inelastic between the constrictions; malady of five years’ duration; patient a “deep-water” sailor, and relieves frequent retentions of urine by using a catheter himself; unable to urinate in a continuous stream; introduced a small gum catheter, size No. 1, with difficulty, and fastened it in, maintaining “continuous dilatation,” with slight intermissions during a month, with a notable increase in size of canal. August 29.—Used divulsion; required a strong force to pass the smallest-sized Holt’s instrument. The constricting fibrous tissue was rent asunder and a profuse hemorrhage followed, with subsequent pain and inflammation. September 4.—The inflammation having subsided, I repeated the divulsion, using a larger-sized instrument, causing less pain and inflammation than before; the operation was repeated every fifth or sixth day, and after the subsidence of the inflammation, which followed the operation, the urine was observed to flow in a continually increasing stream, and the resistance to the instrument constantly diminished. October 27.—The urethra admitted a No. 7 sound, and patient was discharged at his own request. Six months later he called at my office, and reported that he had experienced no further trouble from his stricture. Habits, intemperate.

No. 121.—*Stricture, with urinary fistula.*—George Williams, admitted March 7, 1873, with a stricture near external meatus urinarius, in the fossa navicularis, admitting a No. 1 sound only, and another firm constriction from fibrous deposit three and one-half inches back, and also a urinary fistula in perineum. Used the bulbous bougie in exploring, and finding the stricture near external orifice very painful on dilatation, divided it freely by incision from within, and put a pledget of lint in the cut. Two days after tore asunder the constricting fibers of the other stricture and injected the fistula with a strong solution of iodine while the urethra was filled. We observed a remarkable dilatation of the membranous portion of the urethra into a pouch-like diverticulum in this case. June 14.—The divulsion has been repeated at intervals of five days without untoward symptoms arising, the fistula being perfectly healed, the free flow of urine through urethra re-established, and no urethral discharge nor symptoms of stricture remaining. The patient is discharged.

No. 177.—*Traumatic stricture from contusion of the perineum, with urinary fistulae—External abscesses from infiltration of urine—External urethrotomy performed later—Cysts in liver; perforation of stomach—Death.*—“Wash,” an Indian boy of about twenty years of age, fell from a height astride a capstan-bar, and sustained a severe contusion of the perineum, followed by extensive infiltration of urine and cystitis. Two months after the accident he came under my care with the urine escaping entirely through three or four fistulae in the perineum and scrotum, and a muco-purulent discharge from the urethra. The boy was much emaciated, and suffered such gastric disturbance that it was with great difficulty he could be nourished. After long perseverance I suc-

ceeded in passing an elastic catheter through the urethra and the tortuous false passage into the bladder, emptied it, and fastened the instrument there, intending to treat it by "continuous dilatation," but the patient not understanding our language, and obstinate at best, withdrew the instrument twenty-four hours after. This was followed by the flow of urine in considerable quantity from the natural canal, so that a few days later a second attempt was made to maintain a catheter in the bladder, with the same result as before. Some weeks later the natural channel was found obliterated, the number of fistulæ increased, and abscesses in the gluteal region formed. I now determined to make a direct outlet for the urine, and with that object made a free incision from without into the membranous urethra, introduced a short catheter into the bladder and fastened it, and also incised the several fistulæ. The operation was followed by great relief to the patient, and although he would not allow the instrument to remain in the bladder, yet the urine flowed mostly through the new channel. The boy continued to emaciate. It became impossible to nourish him, the stomach refusing every kind of food, and he died March 2, 1873.

On *post mortem* examination we found that all that portion of the urethra between the bulb and bladder had entirely sloughed away, the mucous membrane of bladder suppurated, and a large recto-vesical fistula established, from which the urine latterly had escaped. Cysts were found in the liver, and one large one pushing against the stomach had caused an ulceration there three inches long, which opened the stomach on removing the liver. Abscesses were also found in the lungs.

[Service of Dr. CRAMPTON, Mobile, Ala.]

Two cases of organic urethral stricture requiring external cutting. No. 1.—Michaël Robinson, aged thirty-two years, was admitted into hospital July 25, 1872, with bilious intermittent fever. Previous history: The patient states that he contracted syphilis eight years ago. Three years after he noticed his stream of urine was becoming small; it gradually diminished in size until his water had frequently to be passed in dribblets—being unable, from the effects of turpentine stupes used in the treatment of the fever, to pass his water except in drops and with pain. Attention was first called to the existing stricture. Two sinuses were discovered communicating internally with the urethra; one through the scrotum, the other at the scroto-perineal junction on the raphæ. So soon as an instrumental examination was admissible a tight, almost impassable, stricture was found at the bulbous portion of the urethra, extending forward about an inch. The scrotum was enlarged, and its subcutaneous connective tissue indurated and thickened. Attempts were first made to overcome the difficulty by gradual dilatation, but after reasonable effort, with little success, it was evident the firm deposits would not yield sufficiently by this method, and "external perineal urethrotomy" was decided upon. September 2 the operation was performed while the patient was profoundly under the influence of chloroform, and in the position for lithotomy. The plan of Dr. C. H. Mastin, of Mobile, as described by him in his pamphlet, entitled "A New Method of treating Stricture of the Urethra after external Section," was adopted in the operation, which is "nothing more than the old L'Boutonnière, in which the incision is made *anterior to the stricture*, a probe passed through the obstruction, and *the stricture cut subcutaneously*, and the wound healed by *first intention*," an operation resorted to only in this class of strictures. It may here be interesting and proper to explain the treatment advised by Dr. Mastin upon coming to the closing and dressing the incision, and best described in his own language: "After all appearance of any oozing of blood has ceased, we then place in the bladder, through the urethra, a full-sized gum catheter, and proceed to close the wound accurately. For this purpose we employ the ordinary suture-pins, of which we pass two, three, or four, as the length of the external wound may call for, entering them about half an inch from the free margin of the wound in the integuments, and passing them

deeply, almost to the urethra, and bringing them out on the opposite side, at the same distance from the edge of the incision to which they had been entered on the other side. The edges of the wound are now evenly and smoothly coaptated, whilst the intervals between the deep-seated pins are more securely closed by the introduction of smaller pins, which are passed less deeply—simply through the skin proper. The pins are now encircled by a firm, flat silk ligature running from one to the other, in the form of united figures of 8; we thus insure both superficial and deep pressure upon the sides of divided tissue. The catheter is left open in the urethra to drain off the urine as it is collected in the bladder. The patient is kept on his side in bed, with a pillow between the knees, and a urinal under the lip of the catheter to catch the urine as it escapes. The wound is kept constantly saturated with a mixture of cold water and the tincture of arnica, applied by means of soft cloths. * * * * *

At the expiration of twenty-four to thirty-six hours the catheter is removed and a new one substituted. In about two or three days the catheter is dispensed with, and only used when calls are made to micturate. * * * On the fourth, fifth, or sixth day, as their appearance may indicate, the deep pins are removed, and as the perineum regains its shape and appearance the superficial pins are removed one by one." The urine is, each time there is a call, drained off during this period, and until the wound has entirely healed, "or so long as any tenderness exists about the seat of stricture."

After the operation this case progressed favorably, and without a single untoward symptom. The urine is voided in a large stream, and a No. 25 bougie (French scale) can be passed easily. The sinuses healed in eleven days, and the incision by the first intention. The patient presented himself for examination August 5 last, and the scrotum had become very much reduced in size, and the results certainly were all that could be desired.

No. 2.—James Monroe, aged fifty-three years, colored; a stout man of full habit; admitted December 5, 1872, with a firm and well organized stricture of four years duration. Little or nothing clear could be ascertained of the previous history of this patient. But this much was learned, that he had had, since a severe case of clap, arrested by strong injections of nitrate of silver, more or less difficulty in passing water; that, applying for treatment outside, he had been operated on twice, by "internal cutting." On admission, the subcutaneous cellular tissue of the scrotum was found thickened and indurated. The integument was also red and eczematous; and there were several sinuses (seven in all) in the scrotum, perineum, buttocks, and in the left groin, through which the urine passed as through a sieve. After repeated attempts no instrument could be forced beyond the coarctation situated at the bulb, and which extended forward an inch or more into the spongy portion, and backward into the membranous portion a short distance, as discovered during the operation performed for his relief. December 19.—The patient, having undergone a preparatory course of treatment, was this day placed on the operating table, brought under the influence of chloroform, and the operation performed in every particular the same as reported in the first case. The progress of the case until January 10, 1873, is worthy of no special notice, save that the wound healed two-thirds the distance by the first intention, the remainder by granulation, and the sinuses had closed in seventeen days. Unmistakable signs of kidney-disease made their appearance at this date, ending the patient's life on April 12, 1873. A *post mortem* examination revealed one of the forms of fatty kidney described by Tanner as "the enlarged, pale, and mottled kidney, the result of sub-acute inflammatory action and fatty degeneration." This condition of the kidneys was found associated with a fatty liver.

Three cases of organic urethral stricture, cut internally. No. 1.—Thomas Beaman, aged fifty years; admitted August 3, 1872, with chronic vesical catarrh, the sequence of a long-standing, organic stricture, situated low down. This patient's general health was sadly broken down through intemperance and the natural effects of the disease from which he suffered. The stricture was divided internally by Professor

Bumstead's instrument, (a modification of Maisonneuve's,) August 13, 1872, without the use of chloroform. A No. 20 sound, French scale, (the only scale employed in this hospital,) was passed, gradually increasing the size to a No. 23. A No. 12 English gum catheter was then introduced, the urine drawn off, and the catheter left as a retained sound for twenty-four hours. The stricture was soon sufficiently overcome to admit treating the catarrh. He was discharged March 3, 1873, cured of the stricture, but with little improvement of his vesical difficulty.

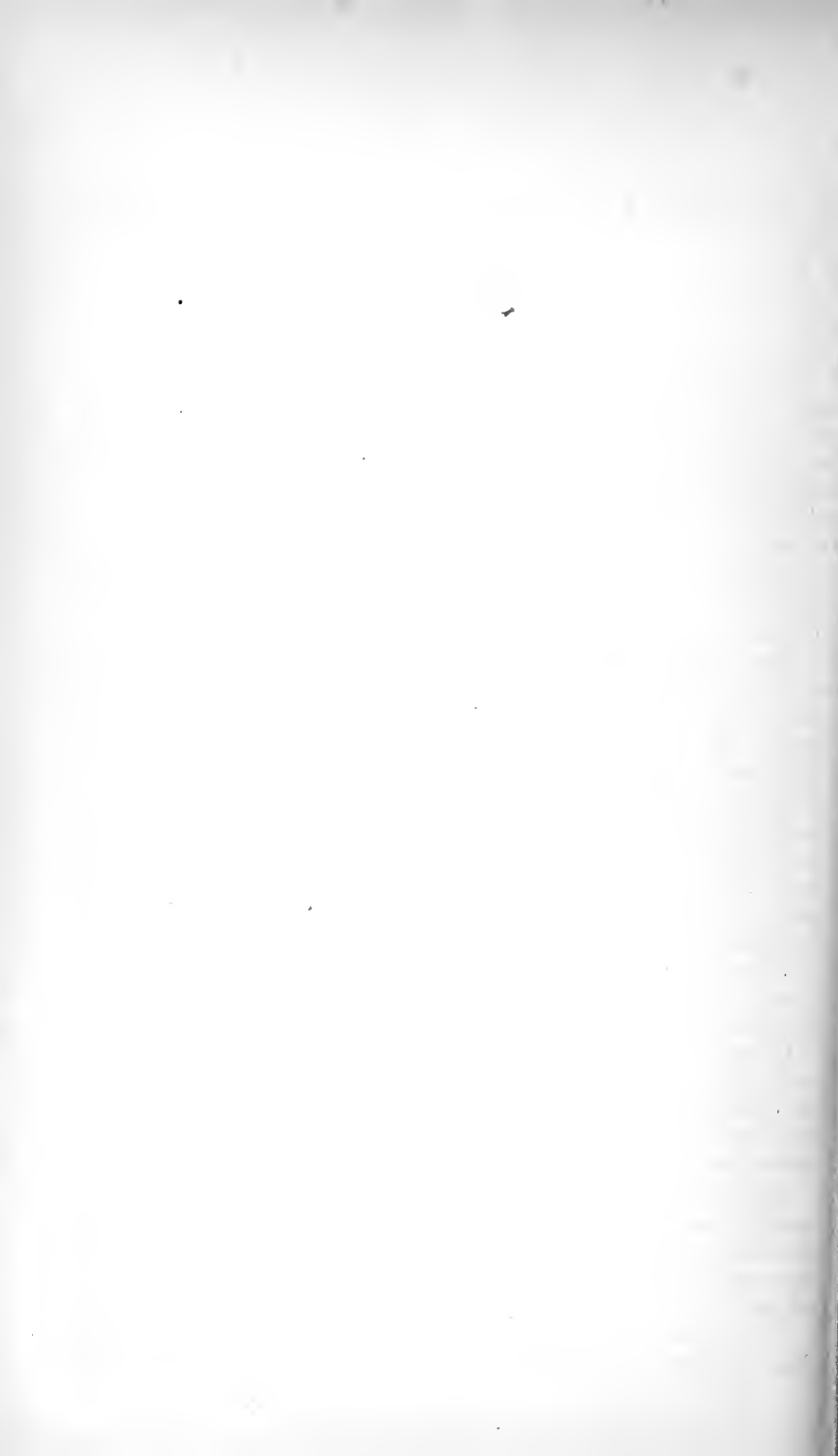
No. 2.—Frank Rector, a Swede, aged thirty-four years; admitted August 12, 1872, with anal fistulæ, and an organic urethral stricture. He states that the stricture was treated in a London hospital, for some length of time, by gradual dilatation, and with considerable relief; but, becoming dissatisfied, he shipped and came to this country. While employed in the lower bay of Mobile an abscess formed near the anus, compelling him to seek hospital relief. The abscess was opened on the day of his admission and found to communicate with the rectum, making a second fistulous opening. These fistulæ in due time were healed, after division with the bistoury and grooved director. The stricture was divided internally, while under chloroform, on the 19th day of August; and the patient discharged, by request, August 27, his vessel being loaded and going to sea. On the day of leaving the hospital he was able to pass himself a No. 23 bougie, and was instructed to carry it up to a No. 25.

No. 3.—Johannes Bosman, aged forty-five years, a strong, healthy Hollander, was admitted to hospital June 21, 1873, with rupture of the urethra, from a fall, striking the perineum across a yard-arm of his ship. On admission the scrotum, penis, and perineum were of a bright-red color, and very œdematous. A clear, serous fluid exuded on puncture. The urine was frequently voided in dribblets, and with great pain. Considerable constitutional irritation existed; nausea and vomiting, with severe pain in the back over the region of the kidneys. It was found impossible to pass any instrument owing to a dense and firm stricture situated low down in the urethra. Free incisions were made into the affected parts, and poultices applied. On the second day the patient seemed better, and the œdema very much reduced, affording great relief. On the twelfth day was so far improved as to admit of an operation to relieve the stricture. While under the influence of chloroform the stricture was divided internally, a No. 23 bougie, French scale, introduced, and afterward a No. 12 catheter, which was left in the usual length of time—twenty-four hours. On the 23d of July, 1873, he was discharged, cured.

There have been treated in this hospital during the fiscal year ended June 30, 1873, thirteen cases of stricture: two by "external perineal section," with the results of one cure, and one death from kidney-disease; eight by internal section, cured; and three treated by gradual dilatation, much improved when last seen.

THE SAILOR AND THE SERVICE AT THE PORT OF
NEW YORK.

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F.—THE SAILOR AND THE SERVICE AT THE PORT OF NEW YORK.

By HEBER SMITH, M. D.,
Surgeon United States Marine-Hospital Service, New York City.

AMONG the duties of the doctor in medicine, in modern times, the study of the causes of disease and the search for measures of prevention have come to be recognized as equal at least, if not paramount, in value to the highest technical skill and the most successful application of remedies when disease actually exists. In this broader field the physician becomes the student and investigator not only of man's physical, but also of his social and moral environment, and the bearing and effect of the most diverse and apparently remote influences are traced to their results in the production of disease and death, or the conservation of health and life.

What is thus true of the doctor in medicine in general, is especially so of the medical officer of the Marine-Hospital Service. To him is confided not merely the medical and surgical care of the sick and disabled who may be entitled to relief from the marine-hospital fund, but the authority to determine the validity of the claim for such relief. This authority carries with it the implied responsibility of guarding the fund from claims growing out of avoidable or preventable causes. Hence it is peculiarly within the province of the marine-hospital surgeon to inquire into the surroundings and conditions of the sailor, both afloat and ashore; to study the effects of his avocation afloat in the production of disease; to investigate his habits when ashore, and the laws and other influences which affect him; and to suggest such measures of correction or relief as may prevent his becoming a charge upon the fund and best preserve him in the vigor of health and usefulness.

It is with these objects in view that the following paper is offered; and though the subjects are treated in a crude and desultory manner, the hope is entertained that their intrinsic importance may awaken sufficient interest to secure some amelioration of the more glaring evils which beset the mariner ashore.

The sailor has in all ages been recognized as the Nation's ward. Ancient Rome had stringent laws for his protection, and England has for many years made the welfare of those hardy mariners, to whom she attributes her former naval and her present commercial supremacy, the object of her wisest and most elaborate legislation.

The United States, relying on the inherent manhood of her citizens, has left them the widest liberty in this as in other respects; and so far

as naval interests are concerned this confidence has never proved misplaced. But in the American merchant-marine this liberty has grown into license; and in the absence of legal supervision, abuses have grown up so flagrant and demoralizing that at last Congress has been forced to enact a law for the protection of seamen in American ports and vessels. An act, which is substantially the English shipping-act, was approved and became a law on the 7th of June, 1872. This law, if executed by commissioners having the welfare of seamen at heart, is, with some few exceptions, admirable for its purpose. But if it is to be put into the hands of selfish and unscrupulous men to execute—men who are intent only upon swelling the fees which the law permits them to take from both the ship-owner and the sailor, and active principally in providing places for a retinue of relatives—then it becomes only an additional engine of oppression, and renders the sailor's condition worse than before.

Unfortunately, instances of such incumbents are not wanting; and this fact is the more to be deplored since it lends a color of justice to the attacks which have been made upon the act, and gives apparent importance to the demands for its repeal. The principal opposition comes, of course, from the sailor boarding-house keepers and runners, who find themselves deprived of a lucrative monopoly in the business of providing ships with crews. And so strong is the hold of these men upon seamen that they have succeeded in making it appear that the sailors themselves are the ones chiefly interested in the repeal of the law, parading them through the streets organized into processions, with flying banners, to demand the return of their privilege of being robbed and sold as before—sold into a bondage as absolute, as degrading, and as hopeless as was ever African slavery.

It is not claimed that the law is perfect by any means; but it is a step in the right direction, and with a few very obvious amendments it would be out of the power of even self-seeking and incompetent commissioners, who have already done so much to cast odium upon it, to prevent its greatly ameliorating the condition of the sailor. The specific necessity for some of these amendments may be here briefly considered.

And, first, it would seem desirable to remove the temptation to multiply fees which the wording of the act now presents to the commissioner. The law provides that the shipping-commissioner shall receive his compensation from fees not to exceed \$5,000 a year; but the practical construction of the act is such that the \$5,000 can be swelled to an indefinite amount through deputy-commissioners and office-expenses. The direct result of this is, it is claimed, an unjust and oppressive interpretation of the act by which the commissioner enforces the collection of fees from the wages of the sailor for discharging and shipping for every trip, no matter how short, and notwithstanding that he may re-ship on the same vessel immediately for another term; and this contin-

nously for months, going through the formalities of discharging and shipping each trip, and each time mulcting him the amount of the fees.

A typical illustration of this evil is given in the following statement, being substantially that of an intelligent sailor applying at the surgeon's office for hospital-relief while this sheet was being penned: "The—— Mail Steamship Company's vessels will average a trip a month. There is very little change in their crews from month to month. In fact, they are not discharged at all, but the formalities have to be gone through with. The sailor is not only thereby taxed 50 cents to swell the fees of the commissioner, but is deprived of his pay while in port. The owners of the vessel keep quiet, because the two dollars shipping-fee, which they have to pay Captain ——, is less than the men's wages would amount to while in port."

It does not seem at all probable that this was contemplated by those who framed the bill, and if the authority to overrule this interpretation exists it should be exercised forthwith, since the common sailor, who is here the sufferer, cannot afford the usual routine of contesting the construction and mode of enforcement of statutory provisions.

It is next to be regretted that the act does not prohibit, specifically and conclusively, the system of "advance wages." To this system, more than anything else, is due the largest proportion of the seamen's troubles. It is through the payment of advance-wages that boarding-house keepers are enabled to fleece sailors by compelling the payment of extortionate, and in many cases purely fictitious, board and rum bills, thus sending him again penniless to sea. He is usually cast ashore before the "dead-horse," as the advance is called, is worked out, and he must then put himself in the power of the keeper again, who obtains his pay from the next advance, and so on. As a writer, who speaks by authority, has recently said, "the sailor should make his own bargain with the captain of the ship, as the sail-maker, steward, and carpenter make their own contracts. Then he will become a man like one of them, and will go to sea cheerfully, to earn his own money, instead of working reluctantly for his 'dead-horse' for the benefit of his landlord. He should receive his wages on board the ship at the end of every month, either in cash, in clothing, or in a draft upon the owners, as he may elect. Then, on his arrival in port, all the landlord can steal will be the cash on his person. After that is gone he will not harbor him a day if he has no prospect of an advance of which to rob him. The sailor will then ship again and he will be kept upon the sea, which is the best place for him until he learns the value of money wherewith to live respectably when he is on shore."

That the reader may, in some degree, appreciate the justice of these strictures, let us follow a sailor from his arrival in port to his departure upon another voyage.

While to the weary passenger the sight of land and the approach to the familiar scenes of the home-port is one of the most joyous occasions

of his life, his happiness is seldom shared by the sailor before the mast, who knows too well the home and the friends that await him. The boarding-house runner, no longer allowed to meet him on board, now awaits him on the wharf. He comes ashore with his bag, and is met on the pier by a runner from the house where he boarded the last time he was in port. His advance-wages, probably, were not sufficient to pay the fictitious bill presented by the landlord when he last shipped; consequently he is still in debt at that house, and is expected, as a matter of course, to return there when he again enters port, and to surrender as security any money he may have, as also his clothes and other effects. Should he ship again the next day he could not escape the landlord, who would be on hand for the advance with a board-bill contracted perhaps months previously, perhaps entirely fraudulent. Such is the superstitious fear sailors have of boarding-masters that they never remonstrate. They have been taught better. They believe that boarding-masters can prevent their ever obtaining another ship, if so disposed.

Under the former system of boarding vessels in the bay—now happily abolished by the shipping-act, but only after a stubborn resistance—if the sailor refused to accompany the runner, he would have been terribly beaten then and there, but in the streets of the city this cannot be done. So he is followed and watched, and fortunate indeed will he be if he escapes.*

But let us suppose the sailor returns with the runner to his old boarding-house. What kind of a place is prepared for his reception? Few that have not had actual experience would credit a faithful description of the vile dens. Situated in the very worst parts of the city, on such streets as Baxter, Water, and Cherry, in old dilapidated houses reeking with filth and overrun with vermin, the sailor is shown to a bunk in a room that has as many double, and in some cases treble, tiers as it will hold, and without a sign of a convenience for the ordinary necessities of life; and that is his lodging-place. In the saloon, or living-room of the house, he is surrounded by a crowd of creatures, male and female, in

* A sailor applied for admission to hospital in August last, having just returned from a voyage. He left his clothes at a ship-chandler's store while he came to the Marine-Hospital office to obtain his permit. Returning to the ship-chandler's for his clothes, he found they had been delivered to a runner and taken to a boarding-house, whither he went to demand his property. The boarding-master not only refused to give up the clothing, but the sickness and helplessness of the sailor did not save him from being shamefully maltreated and kicked into the street, and he was sent to the hospital with blackened eyes and barely clothing enough to cover his nakedness.

The landlord's object in getting possession of the clothes was to compel the seaman to come to his house when he left the hospital. If he came sufficiently submissive, all would be well; the landlord would ship him and take his pay from the advance-wages, not forgetting to charge a good round sum for storage. If the seaman did not come to his boarding-house when he left the hospital, the landlord would still have the clothes which he could sell to other seamen. After being so badly treated the man gave up the pursuit of his property, being afraid of his life.

various stages of intoxication ; and can it be thought strange, if, under such circumstances, he immediately proceeds to get as drunk as his associates ? How can he escape ? Each new-comer is expected to contribute to the hilarity of the crowd, and he would be forthwith thrashed and then pitched into the street if he failed to meet such expectations. And this is his home.*

But the curse of the advance-wages system does not end with the demoralization, the drunkenness and debauchery, and consequent evils to moral and physical health wrought in the boarding-house. As it seizes upon him the moment the sailor sets foot on shore, so it follows him until he is again afloat, and the world is sick of the details of the methods of shipping crews and of the cruelties practiced upon them at sea. That the worst horrors of "shanghaing" are still realities, we have evidence in the case of the ship *Sunrise*, at San Francisco, which sailed from New York with a crew of tailors, carpenters, and barbers, "shanghaied" in the port of New York since the new shipping-act went into effect. But the saddest and most recent testimony is to be found in that noble, last appeal of Captain Fry, of the *Virginus*, who, speaking of his crew, in his effort to save the lives of the poor fellows, says : "The greater portion of the crew were entrapped by their lodging-house keepers, who gained possession of them and watched the opportunity to put them on board on receiving advances on their wages."

What is the remedy for this state of affairs ? Can these evils, which are ruining our mercantile marine ; which, by destroying the efficiency of the sailor, are not the least important factors in the production of avoidable shipwreck and disaster ; and which are more potent than all else in filling our hospitals—can they be removed ? And, if so, how ?

There has been an attempt to do so, by the framers of the shipping-act, by placing certain restrictions on the payment of advance-wages, (sections 17–19.) But the restrictions are easily evaded and have done little or no good. The disease is too serious and too deep-rooted to be

* This description does not, it is true, apply to all sailor boarding-houses. There are a few, out of the one hundred and twenty or thirty houses in New York, where sailors are taken to board, in which no liquor is sold, and where some show of home comfort is made. The largest of these is the "Sailors' Home," under the auspices of the American Seamen's Friend Society. It would be pleasant to find one place for the reception of seamen that could be commended ; but this "Sailors' Home," with the exception of the exclusion of liquor and lewd women, is found to be little better than the others. In the sleeping-rooms recently visited, the actual space allotted to the occupants was in no case over 320 cubic feet ; and the sole provision for ventilation was a crescentic aperture cut through the upper part of the door, and of less than six cubic inches capacity. The same overcrowding and filth, the same tiers of bunks, the same total disregard of hygienic laws, are apparent here as elsewhere. In fact, this "Home" and the Society that directs it are mere burlesques upon philanthropic effort ; and the evidence of the truth of this assertion, as regards the Seamen's Friend Society, is to be found in the published financial statement of its secretary and treasurer.

overcome by half-way measures; only the most heroic treatment will avail. The testimony of all who have studied the subject practically is to the effect that there can be no improvement in the condition of the sailor until the payment of wages in advance is absolutely and effectually prohibited. The only argument in favor of the system which is seriously urged is that, from the improvident habits of the sailor, it is necessary to furnish him with the means to buy his "kit" before he can go aboard for any ordinary voyage. This is hardly worth a moment's consideration. The steward, sail-maker, carpenter, and other petty officers, the firemen, coal-heavers, and all others employed in the engine-rooms of steamers rarely, if ever, receive an advance, while their "kits" generally cost much more than those of the ordinary seaman.

The General Government only can cope with the difficulty. It is worse than useless, in face of the history of the past, to look for any relief from State legislation or from private effort. Such a *résumé* as the following should be a sufficient warning against relying on the former, at least:

The earliest record of a tax imposed upon seamen entering the port of New York occurs in the history of the year 1754. The amount of this tax and the method of its collection is not stated. It was imposed upon seamen and passengers alike, for quarantine purposes, and was known as the mariners' fund. Land was taken on Staten Island, in the name of the people, by right of eminent domain. Buildings were erected, the expense of which was deducted from the joint fund before mentioned. From time to time, as surplus funds accumulated, various laws were passed by the legislature directing in what manner these funds should be disposed of. The House of Refuge for Juvenile Delinquents received in this way, at different times, not less than \$80,000. The various city dispensaries were similarly endowed.

The manifest injustice of taxing the hard earnings of seamen for quarantine purposes, and afterward diverting a large share of the fund so raised to other objects, which were wholly foreign to their interests, began to attract the attention of commercial men in the city of New York about the year 1830. The result was the passage of a law in 1831 separating this fund, and creating the board of trustees of the Seamen's Fund and Retreat, which board was to have control of the tax collected from masters, mates, and seamen, and use the same for their exclusive benefit when sick and disabled. It was definitely ascertained by a thorough investigation that, after deducting all that had been expended in board, nursing, and medical attendance for seamen, there remained in their favor, apart from what had been paid by, and expended for, passengers, the sum of \$341,000. This money had been expended as before mentioned in the purchase of the quarantine site, the erection of buildings, wharves, &c., and the endowment of institutions in the city of New York.

The board of trustees of the Seamen's Fund and Retreat held their

first meeting on the 9th of May, 1831. The tax authorized by law to be collected from seamen entering the port of New York, at that time, was \$1.50 from captains and \$1 from mates and seamen of all deep-water vessels, and 25 cents from masters, mates, and seamen of all coastwise vessels every time they entered port.

The tax thus collected the trustees were directed to expend in the purchase of land, and the erection of suitable buildings, for the exclusive use of sick and disabled seamen. Forty acres of ground were soon after purchased, hospital buildings were erected, and, in course of time, the trustees found they had property valued at \$120,000, and a handsome surplus in the treasury. This prosperity was destined, however, to be of short duration, for in 1847 an act was passed by the legislature instructing the trustees of the Seamen's Fund and Retreat to "cause to be erected, upon the farm occupied by them, a suitable building or buildings, to be exclusively appropriated to, and for the use of, the following-named persons, to wit, the destitute, sick, and infirm mothers, wives, sisters, daughters, or widows of seamen, who, upon satisfactory proof, had paid the hospital-tax for the term of two years." To enable the trustees to carry out the above directions the sum of \$10,000 was appropriated for this purpose out of the moneys which had been paid by the trustees of the Retreat to the credit of the Mariners' Fund. The trustees were further directed to provide annually for the support and care of the aforementioned, out of the tax collected by them of masters, mates, and seamen, after defraying the current expenses of the Retreat.

In 1849 an act was passed by the legislature, directing the trustees of the Seamen's Fund and Retreat to invest \$6,166.13 of the seamen's money in stock of the State of New York, the interest to be applied to the relief of the distressed families of seamen and their orphan children.

In 1851 an act was passed by the legislature, creating the board of trustees of the Mariner's Family Industrial Society, whose duty it should be to receive from the trustees of the Seamen's Fund and Retreat the sum of \$16,166, and apply so much of said sum as might be necessary to the immediate erection of a suitable building on the grounds of the Retreat for an asylum for the mothers, wives, widows, sisters, and daughters of seamen, as provided for in the act of 1847; the surplus, if any there should be, to be applied for the relief of the persons mentioned in the aforesaid act. Five acres of the farm belonging to seamen were taken for this asylum.

In 1853 the United States court decided the tax upon passengers entering the port of New York unconstitutional, and this decision, it was supposed, included also the State tax upon seamen. From that time the payment of the State hospital-tax by the commercial community became a voluntary matter, and the receipts of the institution rapidly declined. But the legislature was not yet through with the sailor's money, collected exclusively for his care when sick and disabled. The last blow came on

the 7th of April 1854, when an act was passed directing the trustees of the Seamen's Fund and Retreat to pay monthly to the treasurer of the Mariner's Family Society, for the maintenance of their asylum, 10 per cent. of the monthly collections of the trustees from masters, mates, and seamen arriving at the port of New York.

Does any one need to be told that the Seamen's Fund and Retreat is bankrupt, with a mortgage of \$50,000 hanging over it, and that its doors are only kept open by the money it receives from chance patients ?

And how much worse is it for a sailor boarding-house keeper to rob and maltreat the poor sailor, than for the great State of New York to collect money from him for over a century, ostensibly to provide him relief when sick and disabled, and then, as fast as a little surplus accumulated, vote it away by legislative enactments for the reformation of juvenile delinquents, the support of dispensaries, and the founding of old ladies' homes ?

In the history of the sailor at the port of New York the facts meagerly outlined in the foregoing will form an indispensable chapter.

Meanwhile, the connection between these surroundings and influences, —the unjust and oppressive interpretation and enforcement of the shipping-act, the train of ills which follow the system of advance-wages, the mockery of philanthropy in so many of the organizations ostensibly devoted to the welfare of "poor Jack," and the legalized swindling carried on under the cover of State enactments—the connection between these and the Marine-Hospital Service is intimate and important.

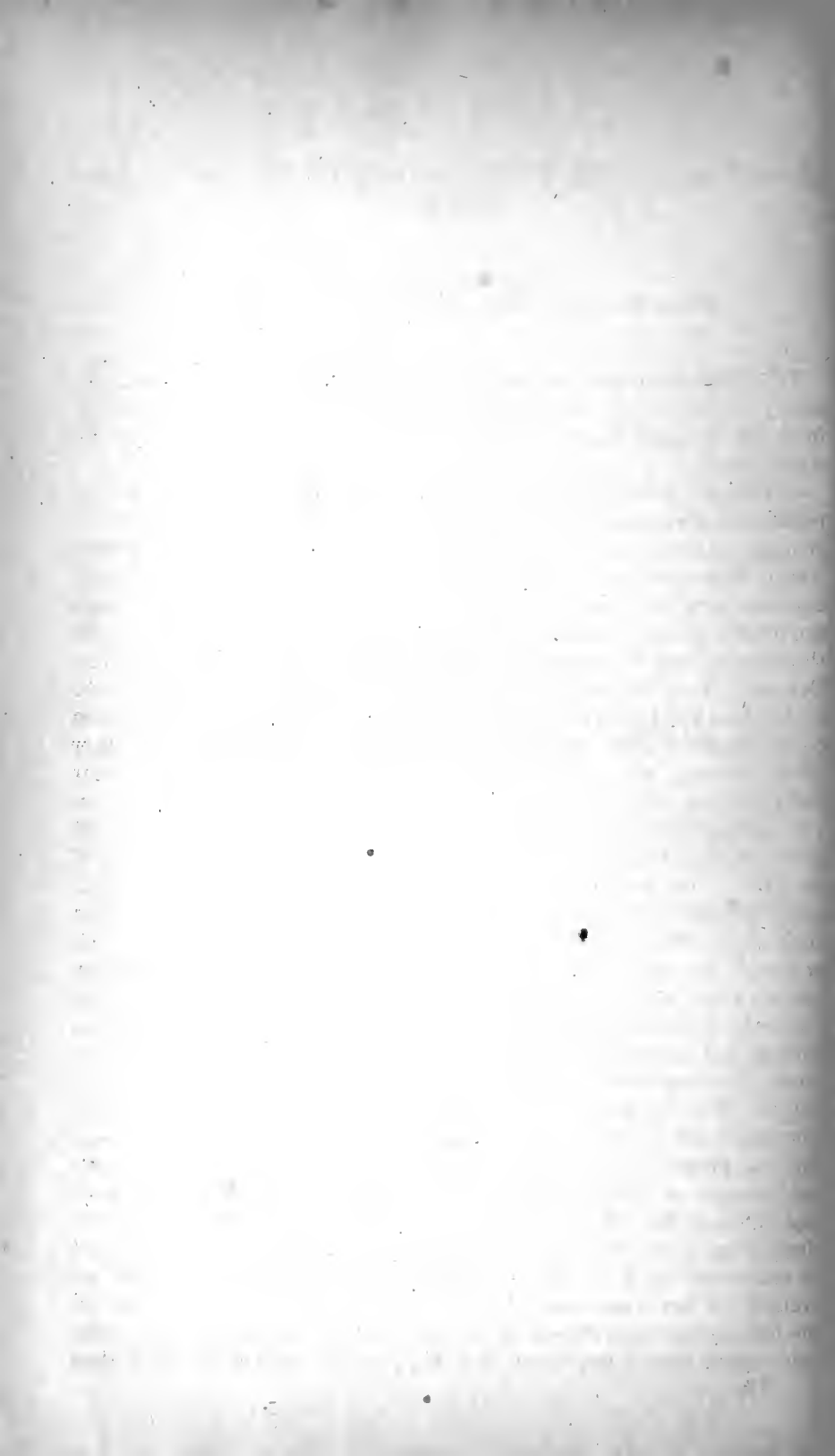
Coming ashore, more than half the time, not only with no wages due him, but actually in debt to the vessel and his landlord, for his "dead-horse" and the various taxes and charges levied on him, it is hardly to be wondered at that the sailor has received the title "reckless." But his recklessness is very far from the ideal of the jolly, light-hearted outpouring of animal spirits which song-writers and novelists have portrayed. It is rather the recklessness of despair; of impulses which drive him to any manner of excess so that he but forget himself and his condition. And soon, from exposure, from the vilest of liquors and the worst debauchery, he is driven to the hospital, broken-down and diseased. Fully 30 per cent. of all cases treated by the marine-hospital surgeon are of preventable diseases—"preventable," not in the ordinary sense of that term, but in the much narrower one of being so by compliance with a few of the simplest and most obvious requirements of decent living.

But even to the sailor while still well, the temptation is strong to make the hospital a refuge; and when the change from his boarding-house bunk to the clean, airy ward, the comfortable bed, and the wholesome food of the hospital—above all, when the change from the landlord's extortionate charges to the freedom from expense while in hospital, is considered, it is not strange that the sailor makes such strenuous effort to convert what is intended for his temporary relief when sick and disabled, into a boarding-house for his convenience while well. The

extent to which this has been done, in the past, is shown conclusively by the reduced expense attending the administration of the Service now, as compared with the cost before it came under its present supervision. For the fiscal year ended June 30, 1873, the total expense at this port, including surgeon's salary, was \$34,070. The expenditures, under the old contract-system, during the fiscal year ended June 30, 1870, were \$81,486.71. This saving, it may be remarked, is due almost entirely to excluding from hospital those applicants who were not strictly subjects for hospital-relief, although no one entitled to the benefit of the fund was refused, and an aggregate of 38,504 days' maintenance and medical and surgical care was furnished for the former sum.



THE RIVER-BOATMEN OF THE LOWER MISSISSIPPI.



G.—REPORT ON THE RIVER-BOATMEN OF THE LOWER MISSISSIPPI.

By ORSAMUS SMITH, M. D.,
Surgeon United States Marine-Hospital Service, New Orleans, La.

THE following report is based upon an investigation, made in accordance with the request of the Supervising Surgeon, into the mode of life, food, shelter, and other conditions affecting the health of seamen on river-boats.

Of such conditions, the most important in its direct bearing upon the nature and amount of sickness among these men is, probably, the construction of the average steamboat used for navigating the Red, Ouachita, Yazoo, Arkansas, and White Rivers, as also the many lakes and bayous emptying into these and into the Mississippi River. These boats are used expressly for the purpose of carrying supplies of all kinds into the interior, and for bringing, as return-freight, cotton and sugar to New Orleans. They are usually of the variety known as "stern-wheel," with a hull from 140 to 175 feet long, from 32 to 35 feet beam, and from $3\frac{1}{2}$ to $5\frac{1}{2}$ feet depth of hold. The propelling engines, two in number, together with the heater and auxiliary or "doctor" engine, are placed quite near the stern, say within 20 feet of it, and extend forward about 40 feet. Forward of the engines, on the main or lower deck, is an entirely vacant space of about 80 feet, and next forward of this the boilers (from 2 to 4) are placed, fore and aft. The boilers are usually 24 feet long; immediately in front of them is a space of about 10 feet for the storage of wood or coal. Forward of this coal-room are the main stairs leading up to the "boiler-deck." On this deck is the cabin, which usually is quite comfortable, having a row of state-rooms on each side, with a dining-room or saloon between. On the largest of these boats there is, over this cabin, a shorter and narrower cabin, known as "the texas," which contains rooms for the captain and officers, and also berths for the cabin servants. This "texas," cabin, and the upper decks, are all supported from the main or lower deck by rows of oak and pine stanchions; and the boat presents the appearance of a frame house with the first story not inclosed or weather-boarded. The usual space between the main and cabin decks is from 12 to 15 feet, and the object in leaving it entirely open is the better facility of stowing a large number of bales of cotton on the lower deck. There is also some width of guard all around the lower deck, say about 2 feet, which, added to the beam of the hull and the narrowness of the upper cabin, permits of cotton-bales being piled from seven to ten tiers high on the sides of the boat, thus

carrying them up alongside the cabin on both sides. A boat loaded in this manner appears a huge pile of bales, very little of her being visible except her chimneys, pilot-house, and wheel. These boats are always classed as to their capacity for carrying cotton, and they rate at from 1,200 to 2,800 bales each. As an ordinary bale of cotton is estimated to measure 27 cubic feet, it can easily be seen that the stowage of the craft is admirably economized, to the detriment of the larger portion of her crew. During the last few years stern-wheel boats have almost entirely superseded the use of side-wheelers in the tributaries, being found more economical and better suited to those crooked, narrow streams. In regard to the provision made for the warmth and comfort of the lower-deck crew of one of this class of boats, it amounts to nothing; as, from the nature of the boat's build and business, she has no room or space which could be set apart for rooms or bunks for the men. Her lower deck is entirely taken up by her machinery, boilers, and the space used for cotton, and this space is simply every spot into which a bale can be squeezed or wedged. There is no deck-stove used, as it would be unsafe to have a fire under the control of such careless beings as compose the deck-crew. The greatest watchfulness is required on the part of all hands to keep such vessels from burning.

In regard to the class of men who do the heavy work on the cotton-boats the following may be said:

The average "roustabout," or, as he is termed in slang, "rooster," is a strong black fellow who has probably been a slave, and leaves the plantation for that supposed freedom, and rollicking life which this class take enjoyment in while their trip's wages last. He soon becomes corrupted by his associates, and after making a trip scarcely ever makes another effort at labor until necessity compels him to procure food. The low dens to which he resorts, and where he squanders his hard-earned money, need no description here, as they are to be found too often in all large cities. The property of the average "roustabout" consists generally in what he stands and sleeps in, comprising an old flannel shirt, a pair of coarse pantaloons, a pair of tattered brogans run down at heel, and an old ragged hat. He may also have a cotton-hook stuck in the waistband of his breeches, but more probably he has traded it off for drink before seeking a berth for a new voyage. He wears neither socks, drawers, nor undershirt, and has no bedding or blanket to protect him from the cold when asleep. The usual way their tasks are performed is to have "all hands" at work at once, consequently their rest is very broken and irregular; frequently they are obliged to work thirty-six hours or longer without rest except for meals. These men are comparatively well paid, their wages being from \$45 to \$60 per month in the winter or busy season; but owing to their thriftless habits the money earned does them but little good.

They are very well fed, both as to quality and quantity of food furnished them. It is well cooked, and consists of good soup, boiled beans,

corned beef, dried apples, &c., with the addition of a thick fruit-pie, or "duff," for dinner. This food is portioned out in large tin pans, and placed on the lower deck or guard of the boat, from which each helps himself to all that he can eat. Twice a day they are plentifully supplied with strong boiled coffee, and when working at night are always furnished with a heavy lunch of cold meat, bread, and hot coffee.

The worst feature of their feeding is the comfortless way in which they take their meals. This, however, is not the case on the large Mississippi River boats, on which they are furnished with mess-rooms, where white and black are separately and well attended to.

Many unfortunate and disastrous trips occur in these tributaries, as I have experienced to my own discomfort. Where a boat happens to be overloaded, and overtaken with extreme low water, and a bad stress of cold weather with frost, these "roustabouts" suffer exceedingly; and the result is a great and sudden increase in the sick-list. One instance, which came under my notice during the past winter, is deserving of mention in illustration of this point. The steamer *Flavilla*, Captain Till, being on a voyage from Shreveport, La., to Jefferson, Tex., a distance of only one hundred and ten miles, was, by reason of high winds and low water, thrown foul of a stump, or some hidden obstruction, in Lake Caddo, and notwithstanding every effort that her crew could make, with the assistance of hawsers and steam-capstan, she remained fast there for about nine days. Her fuel became exhausted, her provisions ran short, and her whole crew suffered severely from cold and hunger. Fuel had to be brought to her in a skiff from one mile distant. When she succeeded in getting afloat once more, and returned to Shreveport, she had a large number of small-pox cases on board, only a small proportion of which found their way into the marine hospital. Many of her crew were also very badly frost-bitten.

In view of the construction of these cotton-boats, the hardships their crews endure from exposure through the want of accommodation, together with the unusually severe winters which have been experienced in the South for the past two seasons, it is no wonder that such diseases as small-pox, rheumatism, and pulmonary complaints are very prevalent. To these causes of disease should be added the immense growth of rank vegetation in these low swampy regions, which, when decaying in the late summer and fall seasons during low water, is a very fruitful source of a large percentage of every form of malarial fevers.



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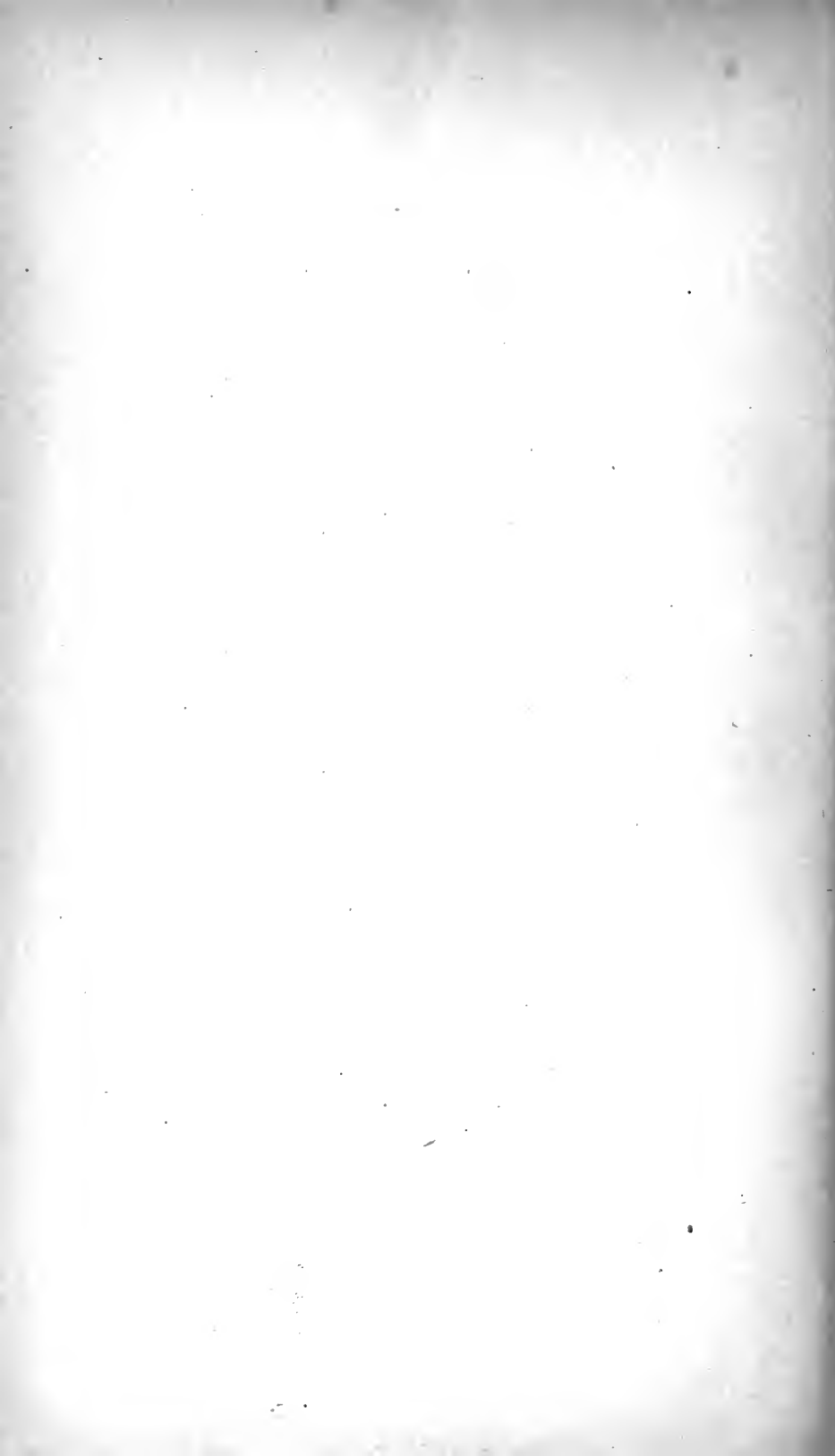
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JUL 17 1941

With the compliments of

Geo. M. Hodworth.

Supervising Surgeon-General.







Treasury Department.

Marine-Hospital Service.

ANNUAL REPORT

OF THE

SUPERVISING SURGEON

OF THE

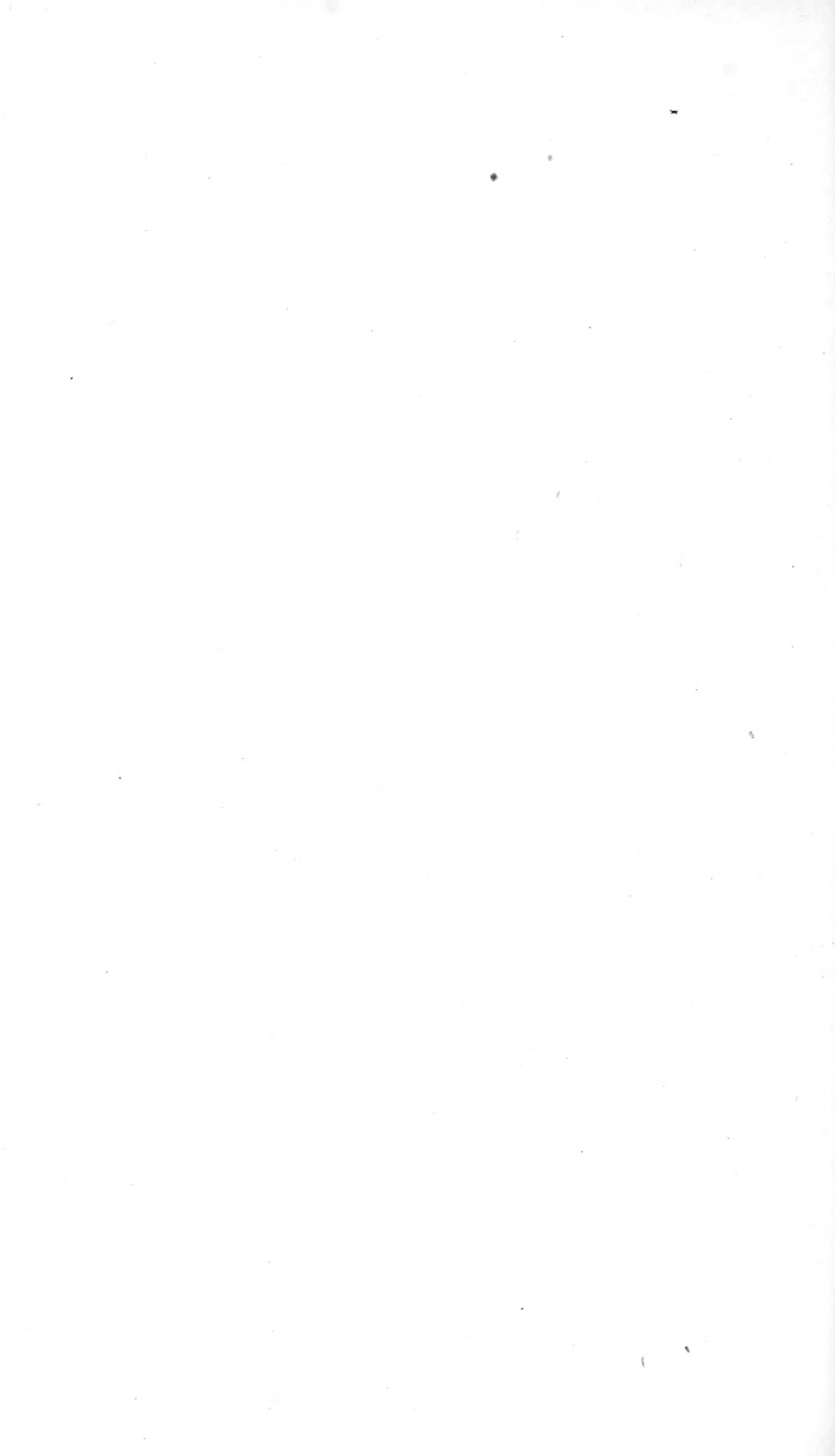
MARINE-HOSPITAL SERVICE OF THE UNITED STATES,

FOR

THE FISCAL YEAR 1874.

John M. Woodworth, M. D.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1874.



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TO
THE HONORABLE
THE SECRETARY OF THE TREASURY.

SIR :

I have the honor to submit herewith a report of the operations of the Marine-Hospital Service of the United States for the fiscal year 1874, (1 July 1873 to 30 June 1874,) being my third annual report.

Very respectfully,

JOHN M. WOODWORTH,

Supervising Surgeon.

SUPERVISING SURGEON'S OFFICE,

15 December 1874.



OPERATIONS

OF THE

UNITED STATES MARINE-HOSPITAL SERVICE:

1874.

(1)



THE MARINE-HOSPITAL SERVICE OF THE UNITED STATES

DURING THE

FISCAL YEAR 1873-'74.

ON the 30th of June, 1874, the merchant marine of the United States comprised a total of 32,486 vessels of all kinds, manned by an estimated ^(a) force of 213,553 officers and men, and with an aggregate capacity of 4,800,652 tons' burden. Certain classes of these vessels—employed in the foreign and coasting trades, and numbering in all, at that date, 20,072 sail, of 3,541,921 tons' burden, and with an aggregate strength of 157,559 officers and men—are subject to the provisions of the marine-hospital laws, the execution of which is devolved upon the Secretary of the Treasury. Under these laws, and since the year 1798, a small monthly sum is deducted from the wages of the crews of such vessels; these sums forming a fund which is expended under the administration of the Marine-Hospital Service in the care and relief of the sick and disabled of this body of men; any deficiency which may arise from time to time being met by an appropriation from the public treasury.

During the fiscal year 1874 there was expended on account of this Service a grand total of \$400,951 58, for which sum 400,452 days of relief were furnished, at ninety-one ports, to 14,364 sick and disabled merchant seamen, thus making the average cost of relief one dollar per day for each patient. ^(b) Of this number, 12,605 serious cases of disease or injury were treated in hospital for an average period of 31.6 days each, with a mortality of about three and one-half per cent.; and 1,759 minor cases were furnished medical and surgical assistance without admission to hospital.

Of hospital dues there was collected during the year a total of \$346,676 31, at one hundred and thirty ports, leaving the sum of \$54,275 57 to be defrayed from the deficiency appropriation. The average annual cost of each patient treated was \$27 91, of which

^a Based on known proportion of crew to tonnage.

^b This relief includes medical and surgical treatment, medicines and appliances, food, shelter, hospital clothing, washing, nursing, &c.; and the expenditures cover the cost of the foregoing, together with the cost of isolated treatment of contagious diseases, the transportation of patients to hospital ports, the burial of the dead, &c., and the salaries and all other costs of administration; in short, all disbursements on account of the Service, except for repairs, &c., to hospital buildings, which items are under the control of the Supervising Architect.

amount \$24 14 was defrayed by hospital-money collections—making the net cost to the Government \$3 77 for each patient relieved.

As compared with previous years, the foregoing figures show—

(1) A decrease of five-and-one-fourth per cent. from the total number of days' relief furnished in 1873, and an increase of eight per cent. over the number of days' relief furnished in 1870.

(2) An increase over 1873 of six per cent., and over 1870 of thirty-six per cent., in the number of seamen relieved.

(3) A reduction in the average duration of treatment of about five per cent. from that of 1873, and of over ten per cent. from that of 1870.

(4) An increase of hospital dues collected, amounting to \$10,830 36 more than in 1873; to \$22,975 26 more than in 1872; to \$70,675 69 more than in 1871; and to \$178,522 61 more than in 1870.

(5) A decrease in the deficiency, amounting to \$32,381 46 less than in 1873; to \$18,287 49 less than in 1872; to \$110,661 43 less than in 1871; and to \$183,194 73 less than in 1870.

(6) A decrease in the average annual cost of each patient treated of \$3 32 from the cost in 1873, and of \$10 52 from the cost in 1870.

(7) A decrease, in the net cost to the Government for each patient relieved, of \$3 88 from such net cost in 1873, and of \$22 51 from such net cost in 1870.

In the foregoing comparison the fiscal year 1870 is cited, because that year was the last of the old system, or no-system, under which this Service had been conducted since 1798; and the object of the comparison is to show, among other things, what improvement is due to the act of June 29, 1870, under which the Service was reorganized, and has been administered for the past three years, the fiscal year 1871 having been a transition period, pending the appointment of a Supervising Surgeon, and the preparation of the machinery necessary for the execution of the new enactment. Incidentally, also, the results thus collated show some of the defects of the present statute, and emphasize the necessity set forth in previous reports for additional legislation in the interests both of the public treasury and of the sailor himself. •

Taking up the points of contrast above given, with the last fiscal year (1874) as the standard of comparison throughout, it is seen that since 1870 the increase in the number of days' relief furnished is only about eight per cent., (1), and this, although there has been during the same period an increase of about fourteen and one-half per cent. in the tonnage of vessels subject to hospital dues, and, consequently, in the

number of seamen to be cared for by the Service. The actual number of individuals relieved, however, was thirty-six per cent. greater than in 1870, (2); and these two factors give a reduction in the average duration of treatment for each patient of over 10 per cent. (3) as compared with the earlier year.

In order to estimate correctly the bearing of this reduction, it should be stated that formerly permits for hospital-relief were granted for a period of four months, at the expiration of which time the patient was discharged, no matter what his condition. It is hardly credible, but the fact is proven, both by the records of this office and by published reports, that for years it was the custom to turn American sailors out of hospital at the expiration of the hospital permit, whether they were sick or well. Sometimes, as a matter of common humanity, and through the personal efforts of the surgeon or collector, admissions to city hospitals, almshouses, &c., were obtained for extreme cases; but not unfrequently they were simply turned adrift, without further concern on the part of the Service. While still adhering to the original provision of the law, (which prescribed "temporary relief" only,) no patient now admitted to marine-hospital relief is discharged until convalescent, or suitably and decently provided for, if permanently disabled.

This reduction in the average period of stay in hospital is due, first, to the higher general standard of professional attainments and efficiency among the medical officers of the Service; secondly, to the operation of the new regulation by which hospital-permits are issued for two months only, at the expiration of which, if further relief be necessary, the details of the case are reported to this office, and such further period is authorized by the Secretary as, in the judgment of the Supervising Surgeon, may be required to effect a cure; and, lastly, to the correction, through frequent inspections, of an old-time abuse, whereby the Service was made an asylum for the lazy or indigent after the necessity for medical relief had passed. To these causes is due the fact, that while a larger aggregate of individuals has been relieved during the past year than ever before, the aggregate number of days' relief furnished is relatively less; and while the percentage of shirkers and malingerers is cut down, the number of absolutely sick and disabled seamen furnished all needed relief is increased; and thus the extent of the operations of the Service, in its legitimate function, is widened.

It is also largely due to the foregoing causes that the deficiency for the year is less than for any previous year since 1850, and even less

than in the years 1872 and 1873 under the same administration; for it will be seen, by comparing the increase of hospital-dues (4) and the decrease in the deficiency, (5,) that the reduced deficit is due in part only to increased receipts.

DEFECTS NEEDING LEGISLATIVE REMEDY.

The fact that this increase in the amount of hospital-dues collected corresponds neither to the increase of the monthly rate under the present act, nor to the growth of the commercial marine since the passage of that act, has formed the subject of serious consideration; and, without discussing the question of the wisdom, as a matter of public policy, of making the Marine-Hospital Service self-supporting, it is pertinent to this report to show what defects in the present law are believed to be the causes to which are due this discrepancy. To a correct understanding of these causes, and as a matter of history, it should be premised that the original draft of the bill, to reorganize the Marine-Hospital Service, included a provision for the increase of the rate of hospital-money from twenty to *sixty* cents per month, with the avowed objects of making the Service not only self-supporting, but also "more acceptable to the beneficiaries and honorable to the Government." In the Senate discussion upon the passage of the bill this proposed increase to sixty cents per month met with much favor; but it was argued, adversely, that such an increase would be imposing an onerous tax upon the wages of seamen, and unjust, in that, as a matter of public policy, the Government should bear some portion of the expense of caring for the sick and disabled of the merchant marine of the country; that sailors perform other service than merely obtaining private profit for ship-owners; that they are in a sense representative of our commercial interests; have been always treated as the wards of a kind Government, and are a class that must receive such treatment.

The final judgment of Congress being against the propriety and expediency of trebling the rate, as proposed, the sum of forty cents per month was eventually fixed upon. And, as it was estimated that the receipts, at sixty cents per month, would amount to \$648,000—a sum supposed to be necessary to avoid the charges that "the scale of relief was insufficient, and that the seamen had just cause of complaint"—while at forty cents per month, the receipts would be only two-thirds the above sum, or \$432,000, and might fall even below this, an appropriation of \$250,000 was made to meet the anticipated deficit.

As a matter of fact, the receipts for the first fiscal year under the act of 1870, at forty cents per month, were only \$293,592; and during

no year since has there been collected double the average amounts of the last four years of the old rate. This fact gains an economic importance in view of the reasonable certainty that the receipts would now be ample for all legitimate demands upon the Service, if the enactment of 1870, providing for the assessment and collection of the sum of forty cents per month from the wages of merchant seamen, were fully complied with. The difficulties in the way of such compliance have been pointed out in the Annual Report of the Secretary of the Treasury for 1874, (see pp. XXXVIII, XXXIX;) and if, as is believed, it is owing to these difficulties, that only about sixty per cent. of the amount which masters of vessels are authorized to deduct from the wages of their crews, is covered into the marine-hospital fund, it would seem to be only necessary to cure these defects by adequate legislation, in order to make the Service fully self-sustaining, even at the present rate.

Such legislation, it is suggested, would provide some simpler form for making the hospital-dues return—thus relieving masters and owners of the burdensome amount of clerical labor now involved; and would establish some mode of verifying the account—the absence of any means of verification now furnishing inducement to make loose and inaccurate returns. It would provide, also, a statutory definition of the term “seaman;” in default of which, some masters return only such of their crews as are shipped “able,” “ordinary,” or “green hands,” excluding officers, carpenters, sail-makers, &c., while others make other distinctions. It is impracticable to follow out these distinctions when the man comes to claim hospital relief. He may have shipped at one time in one capacity, and paid hospital money, and at another time, or with another captain, in a way to avoid such payment.

As there are 157,559 men employed on vessels subject to hospital dues, and for an average period of about nine months each year, it is fair to presume that a reasonably efficient collection—such as this proposed legislation might secure—would give an aggregate of about \$500,000 per annum under the present rate, a sum sufficient to make the Service as amply self-supporting as it is now believed to be acceptable, not to its “beneficiaries,” but to those whose contributions already so nearly defray its expenses.

The necessity for the provision of hospital relief for sailors employed on vessels of the Coast Survey, Light-House Service, Revenue Marine, and Engineer Corps of the Army not otherwise provided for, and for the revision of the rate of charge for the care of sick seamen of foreign vessels by the Service—subjects which have been presented in previous

reports—is still obvious. Sailors ship indiscriminately on the Government vessels above named, and on merchant vessels; they may be taken sick or be disabled while on one of the former; but, though possibly having paid hospital dues for years on a merchant vessel, they are not, under the present law, entitled to relief from the fund. The rate of charge for sick seamen of foreign vessels was fixed by statute, in 1802, at seventy-five cents per day, an amount which does not cover the actual cost of the relief furnished them; thus practically discriminating against seamen serving on American vessels.

In addition to remedies for the foregoing, it is also suggested that Congress authorize the reception of insane merchant seamen in the Government Hospital for the Insane at the expense of the marine-hospital fund. These seamen are, as a rule, debarred the care that insane paupers receive, because in many States only citizens of such States are eligible for admission into their insane asylums. The responsibility and expense of caring for such patients entitled to relief from the Service is a serious embarrassment in ordinary hospitals, which should, if possible, be avoided.

COST OF THE SERVICE TO THE GOVERNMENT.

The financial importance of the decrease in the average annual cost of each patient treated, (6), and of the reduction in the absolute cost of the Service to the Government, (7), is more clearly seen when it is considered that the number furnished relief in 1874 would, under the old regime, have remained in hospital thirty-five days each, making a total of 502,740 days, which, at the former average per diem rate would have cost \$537,931 80; to offset which there would have been \$176,547 hospital dues collected, leaving the net cost to be borne by the Government \$361,384 80, or over twenty-five dollars for each patient.

The net cost to the Government during the past year is, as already shown, \$3 77 for each patient; or, in the aggregate, \$54,275 57 for the relief of thirty-six per cent. more patients than were cared for in 1870, when the aggregate cost to the Government was \$237,470 30.

It should further be observed that under the old system it was the custom to "farm out" marine patients to the lowest bidder. The abuses which were the natural result of this practice became so flagrant that it was finally forbidden by legislative enactment; and although the prohibition applied only to the expenditure of the deficiency appropriation for a single year, this expression of the judgment of Congress upon the contract system still influences the conduct of the Service. Where it is necessary to provide relief in any other than Government

hospitals, or through other than the regular medical officers of the Service, the best relief facilities of the port are secured at fixed rates for such services as may be required; but no obligation is entered into by the Department to send patients to any one hospital or for any given period. In this way, and by constant supervision through medical officers at large ports, and occasional inspections at the smaller ones, a character of hospital relief is furnished which, for results, whether professional or economic, may invite comparison with any other hospital system in the country.

PORT INSPECTIONS AND OFFICE DUTIES.

Thirty-five of the more important ports have been visited during the year, and at all of these changes of greater or lesser magnitude, either in the mode of transacting the business of the Service in the custom-houses or in the conduct of the hospitals, have been found necessary. The defects are generally legacies from the pre-supervisory period, or such as arise from the want of an intelligent appreciation of the object and character of the Service. When these are explained and understood, the co-operation of the collector and the surgeon is, as a rule, promptly and efficiently given, and the improvement is speedily manifest, although changes in the officers make it necessary from time to time to repeat the instruction.

So much of the time of the Supervising Surgeon is necessarily occupied by office duties that it has not been found practicable to make as frequent or as numerous inspections of the ports as is deemed desirable; and to this want of frequent inspection is due many of the discrepancies which an examination of the appended tables will be found to disclose, as well in the economic as in the professional results at various ports. It is believed that its administration would be greatly facilitated and its economy and efficiency promoted by dividing the Service into geographical districts, each embracing a suitable number of ports under the superintendence of a district medical officer directly responsible to the Supervising Surgeon, and which officer should have, as now, charge of the Service at the principal port of the district, but who should also frequently inspect and report upon the conditions of the Service at the minor ports. In the absence of definite legislative authority for such a measure, it has not been thought advisable to venture beyond such tentative essays as the grouping of the ports into districts—as shown in the medical and surgical statistics—and the occasional assignment of the surgeons in charge of ports to inspection duty where the exigencies and interests of the Service make such assignment clearly imperative. The surgeon in charge of the Service at

Louisville has thus inspected many of the ports on the Ohio, Cumberland, and Mississippi rivers; as have also the surgeons in charge at New York, Norfolk, and New Orleans, of ports in their respective vicinities.

This work is accomplished without interference with usual duties which, in themselves, are of the highest importance, as will be seen by the following statement of results achieved at the port of New York within the past three years:

Comparative Exhibit of the Service at the Port of New York.

[For the three years prior to the reorganization of the Service, and for the three years under Surgeon Heber Smith. *a*]

	During the three years ended—	
	June 30, 1870.	June 30, 1874.
Average yearly cost of the Service.....	\$85, 594 00	\$35, 927 16
Average per diem cost of relief.....	1 10	89
Average number of seamen relieved	2, 071	2, 173
Average duration of hospital treatment.....	38.3 days.	22.2 days.

During the past year 38,210 days of relief were furnished to 2,222 seamen, an average of 17.2 days each. The total sum expended was \$35,005 19, a per diem average of 92 cents; but this sum includes, besides all salaries, burials, &c., the expense of establishing a much needed ambulance-service for the port. The collection of hospital-money shows a corresponding improvement, due, also, in great measure, to Surgeon Smith's intelligent and faithful administration.

The following summary statement of the business transacted in the office of the Supervising Surgeon, during the past year, indicates the nature and extent of this branch of his duties:

There were received in the office during the year 1,716 accounts, with 45,332 accompanying vouchers, pertaining to the collection of \$346,676 31 hospital-dues, in 130 customs districts. These were recorded, examined, and corrected when defective by the necessary correspondence, before forwarding to the First Auditor. As provided by the *Regulations*, the chief customs officer at each port makes a monthly summary return of transactions in his district on account of the Marine-Hospital Service. These returns are examined and recorded in this office, and upon the information thus obtained remittances of marine-hospital funds are authorized by the Supervising Surgeon through the Commissioner of Customs. Of these remittances 1,046 were made during the year, and 1,116 accounts, with 31,248 vouchers pertaining to the disbursement of \$400,951 58 of the marine-hospital fund, were received, examined, and perfected before being transmitted to the First Auditor for settlement. The hospital relief furnished involved the fixing of rates of compensation at eighty-three ports, at many of which the rates were decided upon in each individual case, as were

a This officer was assigned to duty as superintending surgeon at the port of New York, in July, 1871; and his salary is included in the cost of the Service here given. It may be added that this illustration of the value of officers appointed solely for professional qualifications and executive ability is typical of the results obtained elsewhere.

also extensions of relief in all cases beyond the limit of time fixed by the *Regulations*. Pertaining to this subject, 23,454 physicians' certificates and hospital permits were examined and acted upon. Requisitions for supplies required by the Government marine-hospitals—including subsistence stores, medicines, instruments, surgical appliances, &c.—to the number of 654, were examined, revised, and authorized. Of official letters, exclusive of the endorsement of remarks direct upon returns and reports, 1,388 were received and 1,791 written in the office. Among other clerical labor, 3,950 reports, including those of a medical and surgical nature, were received and tabulated, and from these and other sources 76 printed pages of statistical matter have been compiled, exhibiting, among other things, the important features of the Service for the year, and of its financial history since A. D. 1798.

THE GOVERNMENT HOSPITALS.

The plans of the new pavilion hospital at San Francisco (published and described in the last annual report) have met with very general approval from hospital experts and from the profession. A suitable site at Mountain Lake, about four miles from the port, was transferred by the War Department, and work begun in June last, and the speedy completion and occupancy of the buildings, which may be expected early in 1875, is looked forward to with interest. The surgeon in charge of the Service at that port is in constant communication with the superintendent of construction, and reports satisfactory progress. Some outlay beyond the first estimate will be made necessary by the change from the site originally selected in order to secure proper drainage, sewerage, and road construction; but the buildings, &c., will, it is believed, be completed for the sum appropriated, \$58,790, which will make this hospital cost only about one-seventh the average amount of other Government hospitals of like capacity.

In accordance with the act of June 22, 1874, the hospital buildings and grounds at Pittsburg, Pennsylvania, have been vacated and turned over to the Supervising Architect for sale, the patients in the meantime, and pending the construction of the new hospital, being cared for in the Pittsburg Infirmary, under the care of the former surgeon in charge of the marine-hospital. By the terms of the act ordering the sale of this establishment, the proceeds of the sale are to be devoted to procuring an eligible and healthfully located site, and the erection thereon of a suitable building for use as a United States marine-hospital, according to designs to be prepared by the Supervising Architect, to the satisfaction of the Supervising Surgeon and approved by the Secretary of the

Treasury; but no action in this latter direction can be taken until the sale is effected.

Experience has so fully demonstrated the unfitness of the old style hospital building, as well as the general inexpediency of maintaining hospitals exclusively for a class which fluctuates so greatly as marine patients do, that the Supervising Surgeon hesitates to recommend any additional outlay on these structures. Extensive repairs are needed on all—the new hospital at Chicago alone excepted—and costly alterations in most, in order to justify their further occupancy; and it is questionable, both on sanitary and economic grounds, if it would not be wiser to tear down or vacate more than one of them. If the recommendation of the Secretary—that Congress authorize the leasing of these buildings—should be acted upon, it is believed that some of the best hospital organizations in the country, embracing the highest professional skill, would apply for the leases. Such organizations, by converting the establishments into general hospitals, and extending and improving them in accordance with modern hospital science, would make them self-supporting, as they cannot be while limited to a class which furnishes, as it does at most ports, only a very few patients.

Maintaining a hospital is like conducting a hotel: neither can be done to the greatest profit or advantage without patrons enough to fully employ the resources of the establishment. A surgeon, sometimes an assistant also, an apothecary, a steward, a matron, a nurse, cooks, laundresses, &c., must be employed whether there be one patient or twenty in the wards; and instances are not wanting where, prior to 1871, a hospital staff has been kept up at the expense of the Government for months at a time without a single patient in the building. At some of these hospitals the Service within the past two years has cost as high as \$2 27 per patient per day, the average cost of the entire Service during the same period being only \$1 per patient per day; and while the average cost of the Service in the eight hospitals maintained exclusively for marine patients was, during the past year, \$1 11 per patient per day, it was only ninety-six cents per patient per day where they were cared for by special arrangement and in private or municipal hospitals. Again, if all patients had been cared for during the last year in Government hospitals, the cost of the Service would have been about \$450,000, and the deficiency about \$100,000, while the cost under the mixed system was \$400,951, and the deficiency \$54,275 27; whereas, if it had been entirely under the special and municipal hospital plan, it would have cost \$387,000, and the deficiency would have been only \$40,000.

It is not meant by this to urge a wholesale and indiscriminate leasing; but only when the best interests, both of the patient and the Service, clearly point to this as the better plan should the property be leased. At any port where the Service is of sufficient magnitude, certainly at such a port as New York, there is no reason why a hospital exclusively for seamen should not be maintained as economically under the auspices of the Government as under municipal authority. In this connection the suggestion of Dr. John S. Billings, of the United States Army Medical Corps, is worthy of careful consideration. This officer recommended the establishment of three, or at most four, National Marine Hospitals—one to be located on the Atlantic coast, one on the Gulf, one on the Pacific, and one on the Great Lakes. To these might be sent all serious cases (fit for transportation) from the ports adjacent to them, so as to keep their wards and organizations always employed. Minor cases, as well as those unfit to bear, or too remote for transportation, would, of course, be treated as now, by local arrangement under the supervision of the Service.

There yet remains so much to be done in the establishment of a compact, economical, and efficient organization; the demands for relief are of such an instant and diverse nature; and the utilization of the potential resources of the Service is even yet so imperfect, that a plan of this character must necessarily be held in abeyance, at least for the present. With the same degree of improvement in the future as in the past three years, and with the receipts of hospital-money correspondingly increased, it may eventually be feasible to secure the benefits which would accrue from such hospitals—to the sailor, in his expert treatment, when sick or disabled, by men, who, in their wards, would have unequalled opportunities for the study and mastery of the special diseases and accidents of sea-life; to the profession and the public at large, which would be the gainers by the lessons and deductions therein obtained; and to the further credit of the Nation for enlightened interest in the welfare of its seamen.^(a)

^a "The second annual report, [of the Supervising Surgeon of the Marine-Hospital Service,] for such it is, demonstrates the judicious efforts made by the United States to care for and encourage seamen. For some years the Great Western Republic has evinced sound wisdom in its advancement of sanitary medicine, and in the recognition of the value of the services of the medical profession as the legitimate machinery for furthering the policy of protecting the health and lives of its citizens. * * * Indeed, with the evident desire to benefit and act well by her seamen, the United States Government is shown not to have failed to protect her mercantile marine service in a manner worthy of a great nation."—[*London Medical Press*, December 2, 1874.] And while this sheet is going through the press, *The Lancet* is recommending the Marine Department of the Board of Trade of the United Kingdom "to take a leaf out of the book" of this Service, concerning which it remarks: "Our transatlantic neighbors, ahead of us in many things, are most decidedly in advance of the old country in providing for the care of their sick sailors."

PREVENTIVE MEDICINE IN THE SERVICE.

While the primary object of the Service as defined by statute is the "relief of sick and disabled seamen," the duty of preventing, in whatever degree, such sickness and disability, is also conceived to be within its scope. Hence, preventive medicine, which is receiving from the profession a continually-increasing amount of attention, has not been lost sight of in its bearing upon the physical welfare of seamen; and the medical officers of the Service have been invited to study and report upon the conditions of sea-life with a view to devising measures for the preservation of the sailor's health and his protection from disease. In response to this invitation a number of valuable and practical papers have been received, discussing such topics as the Hygiene of the Forecastle; Unseaworthy Sailors; Preventable Disease on the Great Lakes; the Cause and Prevention of Disease among River-men; Sailors and their Diseases on the New England Coast; the Freedman and the Service on the Ohio; and others of like nature, the publication of which cannot fail to be of value by pointing out causes of disease and their remedy—the one or two papers of this character in the last Annual Report having awakened an interest which has already resulted in real benefit to the sailor.

Such efforts, while reducing the causes of the demand for hospital relief, should also enure to the benefit of commerce, by making seafaring pursuits less undesirable as well as less destructive of health and life. So long as the average duration of a sailor's life continues to be only twelve years—such low average being largely the result of the food he eats, the clothes he wears, the hole he sleeps in, and the excesses these conditions naturally and inevitably drive him to—so long will continue the cry of "unseaworthy sailors," and so long will there be an inadequate supply even of these. Royal commissions on unseaworthy ships; the revival of a twelfth-century law of the Italian Republics against overloading;^(a) the abolition of the advance-note system; compulsory apprenticeship on merchant vessels; school-ships for training boys, and kindred measures, may or may not be needed in the interests of the mercantile navies of the world—some, unquestionably, will be productive of good. But not until sound hygienic conditions obtain in the forecabin will be entirely removed the difficulties which exist in the way of securing and keeping as good a standard of physical efficiency among sailors as is now found in other pursuits.

In reviewing the work of the past year there is found much reason for congratulation in what has already been accomplished, as well as

^a History of Merchant Shipping and Ancient Commerce. W. S. Lindsay. Vol. 1, p. 503.

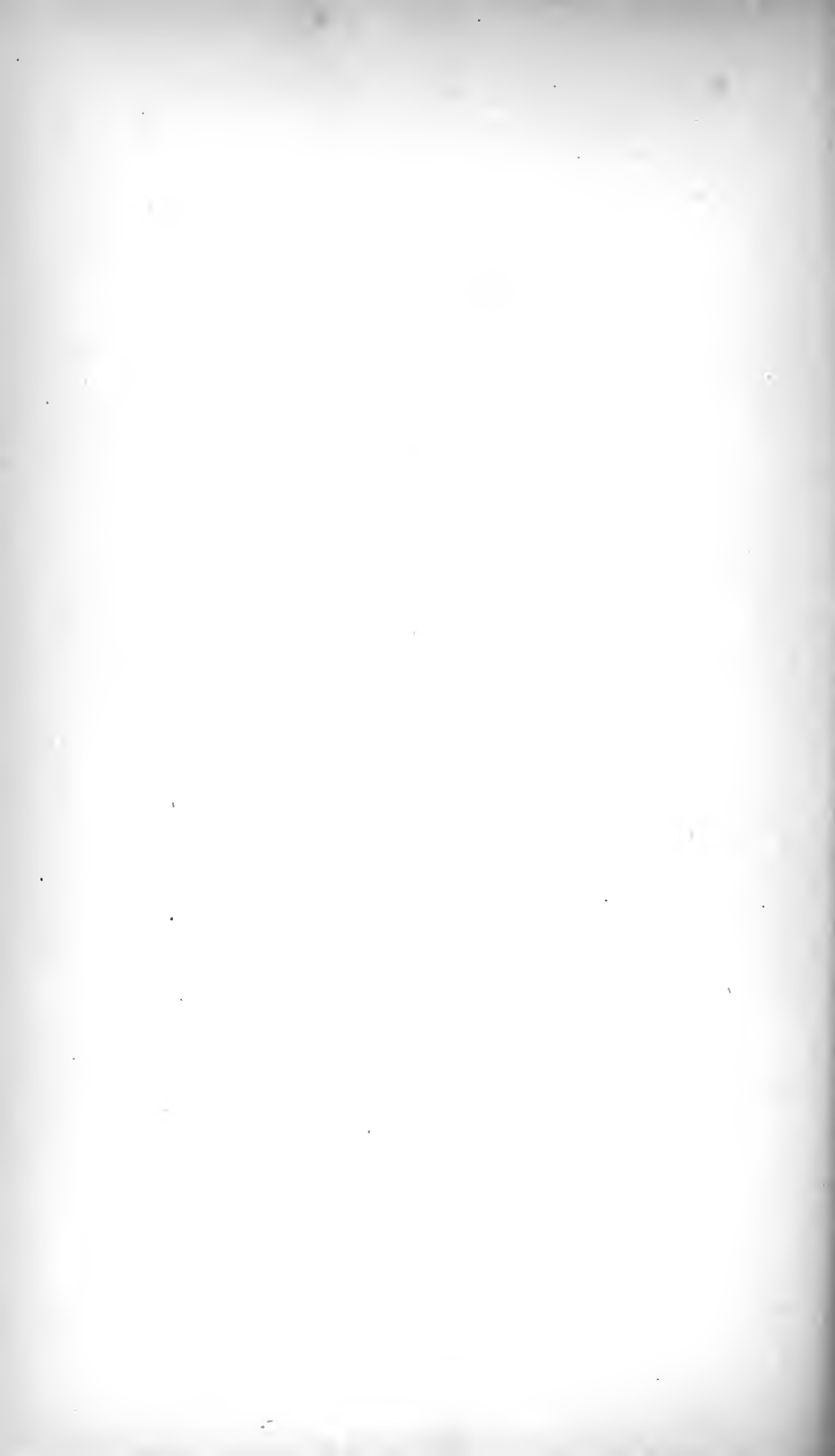
satisfactory assurance of further improvement and increasing usefulness in the future. A great gain to the Service has been made in correcting the widespread impression that, somehow, it was a charity intended to be supported by the Government; and a still greater gain, in removing the grounds for such impression by making its cost to the Government so nearly nominal. It has been sought to restore what is conceived to have been its original character as an agency in the interest of commerce, *through the administration of a trust-fund for the benefit of the contributors thereto*; a class of men whose avocation—indispensable to the national welfare, to civilization itself—in its very nature, debars its followers from the privileges and protection enjoyed by the humblest laborer on shore. It has been sought to hold this fiduciary character of the Service prominently before not only those concerned in its administration, but before the sailor himself, that thereby his contribution to the fund may be promptly and intelligently paid, and his self-respect preserved when he is compelled to seek relief. And it has been sought to import into the transaction of the official business of the Service the same directness and individual responsibility as obtain in private business pursuits.

Its work is attracting attention from abroad, and details of the system have been applied for by foreign governments during the year, with the object of imitating what is, thus far, although in the LXXVIIth year of its existence, still a peculiarly American institution—an institution founded among the earliest of those which grew out of what is ascribed as the prevailing motive which led to the adoption of the Constitution, namely, *To regulate commerce*—to place under the protection of uniform laws those vital agents of commerce, “ship-building, the carrying trade, and the propagation and protection of seamen.”

It is fitting, then, that with the revival of American ship-building and the promised rehabilitation of American commerce, this third factor—the agency specifically charged with the care of the physical condition of American seamen—should also show signs of vitality and progress, and of being worthy its connection with “an interest that represents our distinctive nationality in all climes and upon all seas; an interest that has given more and asked less of the Government than any other of similar magnitude; an interest more essentially American, in the highest and best sense, than any other which falls under the legislative power of the Government.”^(a)

^a Letter of the Hon. J. G. BLAINE, July 3, 1874.

In the preparation of this report the Supervising Surgeon has received valuable assistance from Surgeon F. W. Reilly, of the Service.

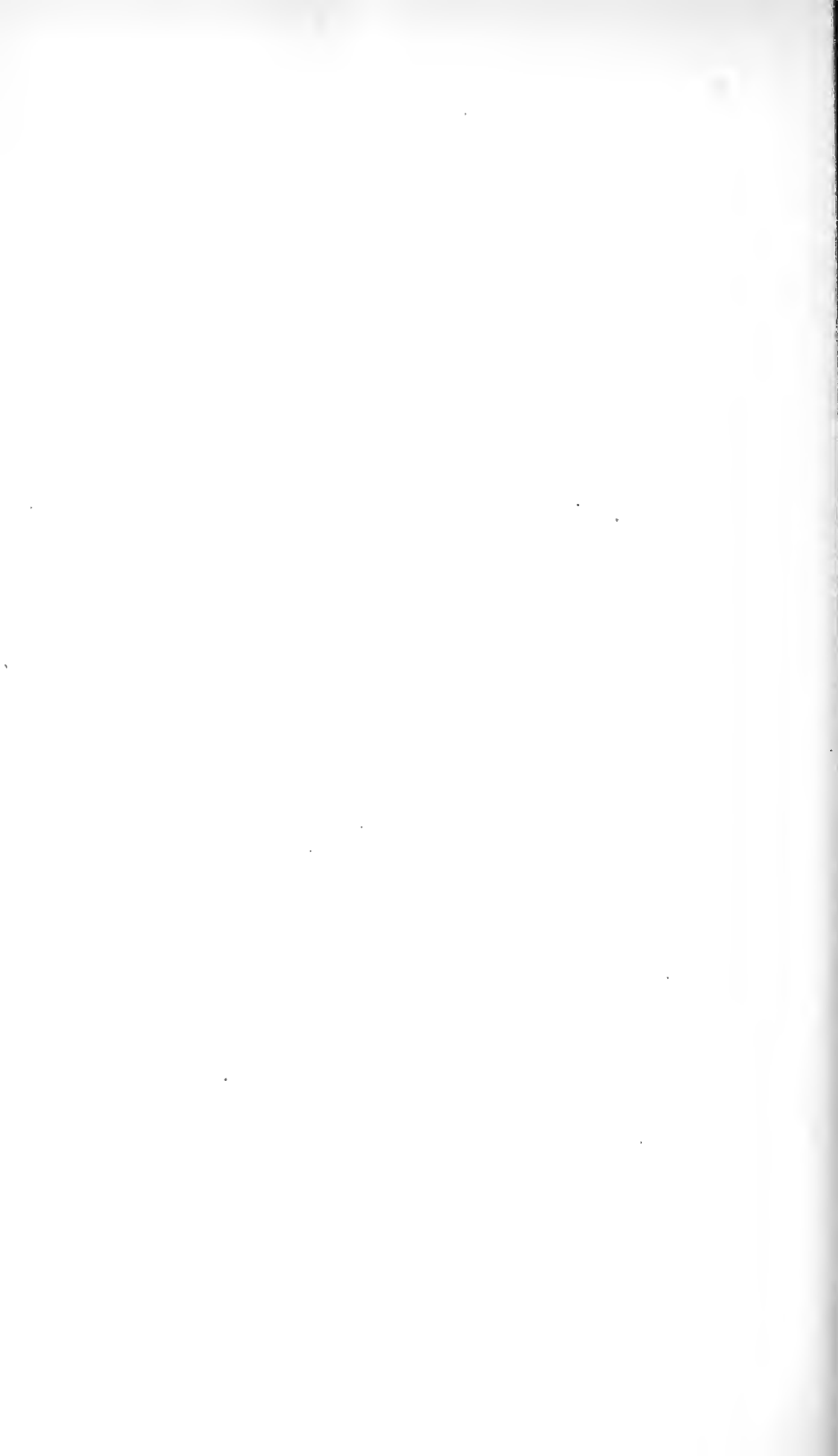


STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE.

FINANCIAL AND ECONOMIC.

2 M H



STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE,

Fiscal Year 1874.

FINANCIAL AND ECONOMIC.

A.—Summary Statement of the Operations of the Service for the Year ended June 30, 1874.

Number of sick and disabled seamen treated in hospital.....	12, 605
Number relieved not sent to hospital, (office-relief).....	1, 759
Total number furnished relief.....	14, 364
Number of days' hospital-relief furnished.....	398, 439
Number of days' office-relief furnished.....	2, 013
Total days' relief furnished.....	400, 452
Average number of patients in hospital each day.....	1, 092
Average number of all patients relieved each day.....	1, 097
Average number of days' treatment for each hospital patient.....	31. 6
Percentage of deaths of hospital patients.....	3. 59
Actual total expenditures for the Service during the year.....	\$400, 951 58
Per diem cost of each patient, based on total expenditures.....	1 00
Total collections of hospital dues.....	\$346, 676 31
Increase of collections over 1873.....	\$10, 830 36
Increase of collections over 1872.....	22, 975 26
Increase of collections over 1871.....	70, 675 79
Hospital relief furnished at 91 ports.	
Hospital dues collected at 130 ports.	

NOTE.—In the supervision of the marine-hospital accounts in the office of the Supervising Surgeon, it is found practicable to keep each year's transactions separate, and to make each year's financial report complete in itself; hence, the amount of "actual total expenditures" here given embraces the sums actually disbursed on account of the year's service, between July 1, 1873, and June 30, 1874. In the same manner, the amount of hospital dues reported collected covers the actual collections for this year only. These figures, therefore, differ from those given by other offices of the Department, where a vast number of accounts are kept, and which are necessarily made up at earlier dates than this statement. Such accounts may include items of expenditures and of collections which belong to the previous year, and may omit corresponding items belonging to this year, but not audited and entered at the time of making up their statements. This would lead to a discrepancy which, upon comparing the totals for a series of years, is found to be apparent only, and not actual.

B.—Comparative Economic Exhibits of the Service.

1. For the last three years prior to its reorganization, as compared with the three years ended June 30, 1874.

	DURING THE THREE YEARS ENDED—	
	June 30, 1870.	June 30, 1874.
Average annual deficiency.....	\$241, 505 03	\$71, 165 12
Average yearly cost of each patient relieved.....	\$37 49	\$29 71
Amount defrayed by hospital-money collections.....	15 83	24 54
Net cost of each patient to the Government.....	21 66	5 17
Average per diem cost of each patient.....	\$1 07	\$1 00½
Average days' hospital treatment per patient.....	35	32½

2. For the years ended June 30, 1871, and June 30, 1874, being respectively the first under the act of reorganization, and the third under the present administration of the Service. (*a*)

	DURING THE YEAR ENDED—	
	June 30, 1871.	June 30, 1874.
Deficiency (<i>b</i>).....	\$164, 937 00	\$54, 275 27
Average yearly cost of each patient relieved.....	\$31 78	\$27 91
Amount defrayed by hospital-money collections.....	20 21	24 14
Net cost of each patient to the Government.....	11 57	3 77
Average per diem cost of each patient (<i>c</i>).....	\$1 04	\$1 00

a The present administration dates from the appointment of the Supervising Surgeon towards the close of the fiscal year 1871.

b The condition of the Service during the first quarter of the current fiscal year, (1875,) warrants the belief that, with the legislation suggested by the Secretary in his Annual Report, the Service may henceforward be considered self-sustaining; consequently no estimate for a deficiency appropriation for the ensuing fiscal year (1876) is deemed necessary.

c The present per diem cost, it should be observed, covers every item of expenditure, including salaries of all officers and employes, the burial of the dead, &c. In the absence of any data previous to the present administration, it is not known what the former per diem cost included.

C.—Exhibit of Operations of the Service at each Port during the Year ended June 30, 1874.

PORTS.	NUMBER OF PATIENTS.						NO. OF DAYS' RELIEF FURNISHED.			COST.		Tax collected.	
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.	Died.	Remaining under treatment June 30, 1874.	No. of seamen furnished office relief.	Aggregate No. of seamen furnished relief.	Hospital relief.	Office relief.	Total.	Daily per capita cost.		Total.
Albany, N. Y.		2	2				2	46		46	\$0 80	\$36 80	\$3,068 13
Alexandria, Va.	2	39	40	1		5	46	734	5	739	1 01	749 00	940 89
Alton, Ill.													10 80
Annapolis, Md.													563 39
Apalachicola, Fla.	1	17	14	2	2	2	20	683	3	686	99	682 48	323 73
Astoria, Oregon	2	52	54					1,706		1,706	1 20	2,047 20	253 76
Baltimore, Md.	22	475	470	13	14	2	499	10,775	2	10,777	54	5,777 53	18,888 80
Bangor, Maine.		30	27	3		34	64	1,176	34	1,210	1 23	1,485 21	1,869 07
Bargaintown, N. J.	2							102		102	1 00	102 00	1,267 76
Barnstable, Mass.	16	207	201	2	20		223	6,618		6,618	1 01	6,732 00	2,971 49
Bath, Maine.	1	18	17	2		4	23	600	4	604	89	540 70	1,787 54
Beaufort, N. C.													609 64
Beaufort, S. C.						1	1		1	1	2 00	2 00	131 95
Belfast, Maine.	1	20	19	1	1	1	22	536	1	537	98	517 00	1,511 46
Boston, Mass.	64	758	745	22	55		822	25,250		25,250	1 14	28,768 13	14,631 09
Bridgeport, Conn.													1,606 14
Bridgetown, N. J.													2,814 86
Bristol, R. I.													134 55
Brownsville, Texas.		5	5				5	180		180	1 00	180 00	531 45
Brunswick, Ga.												28 50	498 57
Buffalo, N. Y.	8	165	141	6	26		173	5,356		5,356	73	3,896 38	5,510 94
Burlington, Iowa.													76 89
Burlington, Vt.	1	5	6				6	205		205	51	104 41	308 64
Cairo, Ill.	13	253	240	12	14	5	271	8,542	5	8,547	91	7,812 80	339 75
Cape Vincent, N. Y.		1	1				1	28		28	83	23 20	282 18
Castine, Maine.	2	18	16		4		20	891		891	42	369 90	1,510 79
Cedar Keys, Fla.		2	1	1			2	20		20	3 11	62 50	365 73
Charleston, S. C.	17	154	158	3	10	2	173	4,542	2	4,544	1 00	4,562 00	2,394 61
Chicago, Ill.	44	537	510	16	55	2	583	19,964	2	19,966	1 21	24,219 54	8,214 56
Cincinnati, Ohio.	39	559	537	12	49	10	608	19,572	10	19,582	72	14,061 66	7,072 85
Cleveland, Ohio.	15	235	228	4	18		250	6,723		6,723	1 22	8,179 31	3,955 39
Coos Bay, Oregon.													181 57
Corpus Christi, Texas.													253 41
Crisfield, Md.												17 00	6,973 46
Detroit, Mich.	30	268	272	10	16		298	7,719		7,719	1 19	9,171 44	6,145 74
Dubuque, Iowa.	6	49	47	1	7		55	1,271		1,271	1 21	1,533 34	292 35
Du Luth, Minn.		2	2				2	36		36	1 70	61 20	110 99
Dunkirk, N. Y.													45 96
Eastport, Maine.	1	15	16				16	385		385	90	347 50	2,319 10
Eastville, Va.													2,163 63
Edenton, N. C.													597 69
Edgartown, Mass.	8	83	73	4	14	3	94	5,246	3	5,249	87	4,571 56	462 40
Ellsworth, Maine.	6	37	39	2	2		43	1,909		1,909	62	1,182 65	1,742 90
Erie, Pa.		1	1				1	35		35	2 89	101 25	1,762 32
Evansville, Ind.	15	219	222	4	8		234	4,840		4,840	71	3,452 85	2,219 90
Fall River, Mass.													2,080 43
Fernandina, Fla.		18	18				18	391		391	1 82	713 00	461 45
Franklin, La.													870 06
Galeña, Ill.													826 52
Galveston, Texas.	20	521	504	17	20	9	550	14,482	9	14,491	99	14,330 00	3,423 83
Georgetown, D. C.	2	79	68	2	11	4	85	2,553	6	2,559	1 34	3,443 97	1,681 51
Georgetown, S. C.												13 00	333 83
Gloucester, Mass.												2 00	1,277 43
Grand Haven, Mich.													1,630 09
Indianola, Texas.		13	12		1	1	14	429	1	430	1 50	644 50	532 82
Jacksonville, Fla.	4	80	80	1	3	3	87	2,133	3	2,136	1 47	3,135 50	1,507 08
Kennebunk, Maine.													68 80
Key West, Fla.	2	183	149	12	24	104	289	5,203	127	5,330	1 20	6,394 92	2,528 61
La Crosse, Wis.		2	2				2	38		38	1 00	38 00	315 48
Lamberton, N. J.													490 16
Louisville, Ky.	58	436	444	21	29	191	685	20,811	204	21,015	1 00	21,090 11	1,660 64
Machias, Maine.	1	16	16		1		17	672		672	76	510 30	1,390 45
Marblehead, Mass.													128 54
Marquette, Mich.		22	22				22	646		646	1 27	821 50	591 73
Memphis, Tenn.	4	192	180	10	6		196	3,654		3,654	1 07	3,921 50	1,758 36
Middletown, Conn.		9	6	1	2		9	398		398	68	270 90	2,363 21

C.—Exhibit of Operations of the Service, &c.—Continued.

PORTS.	NUMBER OF PATIENTS.							NO. OF DAYS' RELIEF FURNISHED.			COST.		Tax collected.
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.	Died.	Remaining under treatment June 30, 1874.	No. of seamen furnished office relief.	Aggregate No. of seamen furnished relief.	Hospital relief.	Office relief.	Total.	Daily per capita cost.	Total.	
Milwaukee, Wis.....	11	139	118	9	23	150	4, 774	4, 774			\$0 75	\$3, 596 77	\$4, 435 99
Mobile, Ala.....	33	296	282	8	39	329	20, 116	20, 116			75	15, 135 00	2, 525 86
Nantucket, Mass.....													87 31
Nashville, Tenn.....	12	28	38	2		40	1, 819	1, 819			88	1, 602 90	666 95
Natchez, Miss.....												6 75	56 00
Newark, N. J.....													1, 154 27
New Bedford, Mass.....		24	22	2		24	709	709			1 00	709 00	1, 294 23
New Berne, N. C.....	1	18	17	1	1	19	305	305			2 50	763 54	1, 022 49
Newburyport, Mass.....	1			1		1	8	8			2 87	23 00	237 27
New Haven, Conn.....	3	48	46	2	3	51	1, 489	1, 489			1 00	1, 497 00	2, 275 82
New London, Conn.....		8	7		1	20	28	289	20	309	67	208 50	1, 429 12
New Orleans, La.....	47	516	464	62	37	272	835	20, 154	272	20, 651	1 15	23, 733 98	19, 353 13
Newport, R. I.....		3	3			4	7	129	4	133	75	99 35	1, 302 54
New York, N. Y.....	74	1, 282	1, 189	64	103	866	2, 222	37, 150	1, 060	38, 210	92	35, 008 19	56, 297 25
Niagara, N. Y.....													184 82
Norfolk, Va.....	35	293	303	10	15	58	386	14, 429	59	14, 488	1 06	15, 401 15	4, 361 46
Ogdensburg, N. Y.....	1	3	3	1			4	205		205	73	149 06	383 80
Omaha, Neb.....													550 12
Oswego, N. Y.....	1	14	15		3	18	275	3	278		2 80	778 00	1, 567 82
Paducah, Ky.....						2	2	2		2	1 00	2 00	476 41
Parkersburg, W. Va.....													1, 198 81
Pembina, Minn.....		3	1		2	3	23		23		1 00	23 00	1, 042 03
Pensacola, Fla.....	9	192	180	13	8	1	202	6, 244	1	6, 245	1 00	6, 254 00	1, 247 96
Perth Amboy, N. J.....													2, 017 24
Petersburg, Va.....													209 41
Philadelphia, Pa.....	40	533	522	13	38	573	15, 348	15, 348			1 09	16, 663 11	19, 907 22
Pittsburg, Pa.....	11	192	181	3	19	203	6, 049	6, 049			1 10	6, 657 33	4, 908 93
Plattsburg, N. Y.....		2	2			2	51	51			66	33 85	506 91
Plymouth, Mass.....													101 52
Port Huron, Mich.....												17 90	3, 061 84
Portland, Maine.....	8	159	150	5	12	167	4, 387	4, 387			1 25	5, 476 40	3, 495 08
Portland, Oregon.....													2, 249 01
Portsmouth, N. H.....	1	6	7			7	254	254			1 18	299 62	501 24
Port Townsend, W. T.....	20	198	203	4	11	4	232	8, 514	4	8, 518	1 00	8, 527 00	3, 405 55
Providence, R. I.....	13	115	117	2	9	2	130	3, 437	2	3, 439	1 15	3, 945 88	2, 107 83
Quincy, Ill.....													178 50
Richmond, Va.....	3	25	26	1	1	28	662	662			92	608 50	552 41
Rochester, N. Y.....													150 77
Saco, Maine.....													129 90
Sag Harbor, N. Y.....		4	3		1	4	160	160			78	124 70	895 25
St. Augustine, Fla.....													40 20
St. Josephs, Mo.....													111 60
St. Louis, Mo.....	48	646	638	22	34	694	17, 029	17, 029			83	14, 100 98	10, 841 07
St. Mary's, Ga.....													252 06
St. Paul, Minn.....	5	22	20	1	6	27	1, 111	1, 111			96	1, 064 45	(a)
Salem, Mass.....													426 22
San Diego, Cal.....													514 92
Sandusky, Ohio.....												1 00	1, 237 81
San Francisco, Cal.....	46	516	489	20	53	139	701	21, 392	159	21, 551	1 07	23, 056 85	30, 811 25
Savannah, Ga.....	14	255	248	5	16	7	276	8, 547	7	8, 554	1 00	8, 602 00	3, 703 54
Shreveport, La.....	15	92	93	8	6	107	2, 942	2, 942			1 53	4, 493 00	(b)
Shieldsboro', Miss.....													1, 510 88
Sitka, Alaska.....		2	2			2	70	70			1 46	102 00	261 36
Stonington, Conn.....													673 29
Tappahannock, Va.....		1	1			1	51	51			50	25 50	675 27
Toledo, Ohio.....												12 00	727 11
Town Creek, Md.....													198 88
Tuckerton, N. J.....	1	53	45		9	54	1, 998	1, 998			1 20	2, 397 60	696 57
Vicksburg, Miss.....	6	122	119	3	6	128	4, 335	4, 335			1 01	4, 359 00	741 90
Waldoboro', Maine.....	6	48	45	5	4	54	2, 439	2, 439			51	1, 238 50	3, 385 50
Wheeling, W. Va.....	4	22	24		2	26	1, 165	1, 165			97	1, 130 05	1, 306 45
Wilmington, Del.....												19 00	2, 174 22
Wilmington, N. C.....	2	48	44	1	5	50	2, 644	2, 644			1 00	2, 654 00	1, 109 27
Wiscasset, Maine.....	2	1	2		1	3	676	676			62	422 10	364 25
York, Maine.....													64 00
Yorktown, Va.....													788 47

a Included in returns from Pembina.

b Included in returns from New Orleans.

D.—Statement of Annual Collections, Appropriations, and Expenditures on account of the Service from October 1, 1798, to June 30, 1874.

[The act of May 3, 1802, (2 Stat., 192.) provides that all hospital money collected shall be paid into the Treasury; and from June 30, 1802, when this provision went into effect, this statement is by warrants; prior to that date the statement is made from collectors' accounts.]

Year.	Collections.	Appropriations.	Available.	Expenditures.
1798 } 1801 }	<i>a</i> \$141,690 25		\$141,699 25	<i>b</i> \$74,636 51
1802. }	<i>c</i> 47,635 09		47,635 09	38,500 74
1803. }	33,766 47		33,766 47	250 00
1804. }	54,933 21		54,933 21	31,087 36
1805. }	58,210 98	\$1,000 00	59,210 98	<i>d e</i> 84,027 50
1806. }	57,928 20		57,928 20	59,828 41
1807. }	66,820 01		66,820 01	<i>f</i> 53,281 98
1808. }	61,474 47		61,474 47	65,571 51
1809. }	36,515 44		36,515 44	60,383 16
1810. }	<i>g</i> 74,192 42		74,192 42	70,901 75
1811. }	53,715 20		53,715 20	36,793 60
1812. }	54,586 34		54,586 34	57,109 08
1813. }	42,421 46		42,421 46	<i>h</i> 57,723 11
1814. }	21,789 58	20,000 00	41,789 58	53,376 87
1815. }	10,191 97	20,000 00	30,191 97	45,226 50
1816. }	28,374 74	20,000 00	48,374 74	43,651 55
1817. }	43,864 21		43,864 21	<i>i</i> 82,555 68
1818. }	48,081 88		48,081 88	<i>j</i> 81,749 28
1819. }	46,911 27		46,911 27	87,230 62
1820. }	50,405 84		50,405 84	84,097 61
1821. }	48,765 01	81,319 34	130,084 35	87,217 39
1822. }	48,569 99	50,000 00	98,569 99	66,845 48
1823. }	51,923 72	30,000 00	81,923 72	44,324 61
1824. }	53,062 91		53,062 91	44,761 13
1825. }	51,877 52	<i>k</i> 12,875 00	64,752 52	47,861 77
1826. }	56,992 39		56,992 39	<i>l</i> 54,938 51
1827. }	58,133 10		58,133 10	51,236 98
1828. }	58,233 67		58,233 67	<i>m</i> 89,137 42
1829. }	56,217 27		56,217 27	69,259 61
1830. }	58,361 34		58,361 34	63,562 28
1831. }	57,447 13		57,447 13	68,996 96
1832. }	59,182 17		59,182 17	65,563 98
1833. }	58,942 56		58,942 56	76,877 87
1834. }	62,901 15	15,750 00	78,651 15	68,948 73
1835. }	64,532 98		64,532 98	74,668 96
1836. }	66,621 77	25,000 00	91,621 77	86,268 43
1837. }	67,961 02	15,000 00	82,961 02	89,370 70
1838. }	27,021 24	175,000 00	202,021 24	97,935 75
1839. }	35,234 52		35,234 52	109,229 59
1840. }	66,311 83		66,311 83	121,653 31
1841. }	71,675 91		71,675 91	130,561 07
1842. }	72,760 20	97,000 00	169,760 20	109,758 82
1843. }	72,429 36	46,500 00	118,929 36	100,112 57
1844. (half year). }	37,417 18	58,500 00	95,917 18	49,430 86
1845. }	85,864 42	25,000 00	110,864 42	62,148 67
1846. }	88,074 34	25,000 00	113,074 34	168,016 20
1847. }	90,675 68		90,675 68	68,678 70
1848. }	95,216 73	25,000 00	120,216 73	123,257 42
1849. }	97,989 26	12,000 00	109,989 26	140,995 50
1850. }	103,496 38	12,000 00	115,496 38	103,167 65
1851. }	106,437 49	15,000 00	121,437 49	162,379 67
1852. }	133,447 07	200,000 00	333,447 07	139,220 43
1853. }	134,393 26	200,000 00	334,393 26	203,115 23
1854. }	133,718 08	100,000 00	233,718 08	280,750 10
1855. }	146,576 31		146,576 31	292,825 69
1856. }	148,733 43	200,000 00	348,733 43	345,987 46
1857. }	155,068 14	150,000 00	305,068 14	368,520 86
1858. }	167,325 29	250,000 00	417,325 29	354,053 90

a Includes \$15,635 33 hospital money received from the Navy Department.

b Includes \$6,185 33 for purchase of Norfolk hospital.

c Includes \$2,500 hospital money received from the Navy Department.

d Includes \$14,842 34, cost of Charlestown hospital, at the port of Boston.

e Includes \$157 66 carried to surplus fund.

f Includes \$379 66 carried to surplus fund.

g Includes \$38,515 96 hospital fund received from Navy Department.

h Includes 1 cent carried to surplus fund.

i Includes \$6,500 expended for repairs of Norfolk hospital.

j Includes \$5,500, cost of site of Charlestown (S. C.) hospital.

k Received from sale of hospital at Charlestown, Mass.

l Includes \$4,068, cost of site, &c., for marine hospital at Chelsea, Mass.

m Includes \$27,603 39, cost of Chelsea hospital.

D.—Statement of Annual Collections, Appropriations, and Expenditures—Continued.

Years.	Collections.	Appropriations.	Available.	Expenditures.
1858.....	\$164,161 82	\$150,000 00	\$314,161 82	\$379,214 86
1859.....	178,195 59	150,000 00	328,195 59	349,890 36
1860.....	173,073 09	275,000 00	448,073 09	455,593 10
1861.....	155,172 43	175,000 00	330,172 43	308,918 13
1862.....	128,526 97	200,000 00	328,526 97	290,447 41
1863.....	118,307 74	200,000 00	318,307 74	198,933 60
1864.....	117,824 05	100,000 00	217,824 05	260,911 84
1865.....	128,656 30	150,000 00	278,656 30	348,472 82
1866.....	142,292 81	170,000 00	312,292 81	<i>a</i> 335,958 39
1867.....	231,596 91	200,000 00	431,596 91	<i>a</i> 415,580 53
1868.....	184,530 35	250,000 00	434,530 35	<i>a</i> 443,646 53
1869.....	176,957 95	200,000 00	376,957 95	<i>a</i> 391,296 89
1870.....	168,153 70	200,000 00	368,153 70	<i>a</i> 353,277 54
1871.....	293,592 14	250,000 00	543,592 14	<i>a</i> 437,493 86
1872.....	319,823 16	<i>b</i> 154,050 00	473,873 16	421,897 03
1873.....	333,003 03	125,000 00	458,003 03	398,778 69
1874.....	352,379 98	100,000 00	452,379 98	409,039 04

a The expenditures from 1866 to 1871, as represented in this statement, are less than the actual expenditures for those years by \$91,250 11, in consequence of various sums, aggregating that amount, received on account of sales of marine hospitals, having been credited as repayments.

b Includes \$4,050, being a part of the proceeds from the sale of the marine hospital at Vicksburg, Miss., sold by authority of the act of April 20, 1866.

E.—*Tabular Record of United States Marine-Hospital Buildings from A. D. 1800 to close of Fiscal Year 1874.*

Location.	Purchased or commenced.	Occupied.	Amount expended in 1874.	Cost to date.	Condition or disposition.	Proceeds of sales.
Norfolk, Va. ^a	1800	.....	.....	\$22,395 10	Sold, 1869.....	\$15,613 80
Newport, R. I. ....	.....	.....	.....	.....	(a).....	.....
Boston.....	{ 1..... 1802	1804	.....	14,842 34	Sold, 1824.....	12,875 00
	{ 2..... 1825	1827	.....	32,168 06	Sold, 1867.....	54,803 38
	{ 3.....	{ about 1860	{ \$376 96	394,424 99	In use.....	.....
Charleston, S. C.	{ 1815	1834	.....	26,685 77	Sold, 1866.....	9,500 00
	{ 1832	.....	.....	.....	.....	.....
New Orleans.....	{ 1837	1849?	.....	122,772 70	Sold, 1866 (b).....	.....
	{ 2..... 1855	.....	.....	530,090 84	Unfinished (c).....	.....
Mobile, Ala.	d 1838	1843	.....	55,339 71	Leased for seamen.....	.....
Pittsburg, Pa. ....	.....	1842	.....	72,554 57	Closed.....	e 20,550 96
Louisville, Ky.	f 1843	1852	.....	98,452 47	Leased for seamen.....	.....
Cleveland, Ohio.....	f 1844	1852	3,429 19	122,721 03	In use.....	.....
Natchez, Miss.	f 1845	1852	.....	66,750 00	(g).....	.....
Key West, Fla.	1844	1845	244 02	34,418 86	In use.....	.....
Ocracoke, N. C.	1843	1847	.....	9,227 07	Abandoned (h).....	.....
Paducah, Ky.	1842	1852	.....	58,525 77	Burned, 1868.....	16,571 34
Napoleon, Ark.	f 1842	1855	.....	62,290 83	Destroyed, 1868 (j).....	30 00
Chicago.....	{ 1..... k 1849	1852	.....	64,070 98	Sold, 1864.....	132,000 00
	{ 2..... 1867	1873	.....	421,755 82	In use.....	.....
Saint Louis, Mo.	l 1850	1858	6,111 98	115,414 10	In use.....	.....
San Francisco, Cal. { 1..... m 1851	1854	.....	.....	231,871 10	In ruins.....	.....
	{ 2..... n 1874	.....	.....	.....	Unfinished.....	.....
Evansville, Ind.	1853?	1856	.....	59,899 02	Sold, 1867.....	10,507 11
Portland, Maine.....	1852	1859	12 00	122,837 13	In use.....	.....
Vicksburg, Miss.	1853	1856	.....	67,775 16	Sold, 1870.....	20,257 52
Pensacola, Fla.	(o).....	.....	.....	1,052 96	.....	.....
Detroit, Mich.	1855	1857	113 01	109,100 99	In use.....	.....
Cincinnati, Ohio.....	1856	(p).....	.....	182,665 48	Sold, 1866.....	70,500 00
Burlington, Iowa.....	1856	1858	.....	29,996 84	Sold, 1867.....	6,000 00
Saint Mark's, Fla. ....	.....	1859	.....	25,758 00	Transferred, 1867 (q).....	.....
Burlington, Vt.	1855	(p).....	.....	39,572 30	Sold, 1866.....	7,164 41
Wilmington, N. C.	1857	(r).....	.....	43,897 44	Sold, 1870.....	4,020 00
Galena, Ill.	1857	1861	.....	48,797 58	Sold, 1868.....	6,321 08
Port Angeles, Wash. Ter	(s).....	.....	.....	.....	Sold, 1868.....	165 00
Totals.....	.....	.....	10,287 16	3,288,125 01	.....	376,879 60

a Reported by the Secretary of the Treasury, February 16, 1802, to have been discontinued. No other record found.

b Reported as sold in 1866 for \$300, but the amount does not appear to have been received.

c Completion of the hospital building impracticable. Ordered sold; act March 3, 1873.

d First site selected in 1837. Abandoned on account of defective title.

e This amount is from sale of a portion of hospital grounds in 1870. The building is now closed, awaiting sale under act of June 22, 1874.

f Sites selected by the medical board of the Army in 1837.

g Building injured by a hurricane in 1873, so as to be unfit for use; not required for a marine hospital.

h Unoccupied and not required.

i From sale of land.

j Building and grounds washed away by the river.

k Site ceded by War Department. Hospital burned, October 10, 1871, before the property was delivered.

l Site ceded by War Department.

m Site set apart from Government land. Hospital injured by an earthquake in 1868, and abandoned.

n Site ceded by War Department. Work begun June, 1874.

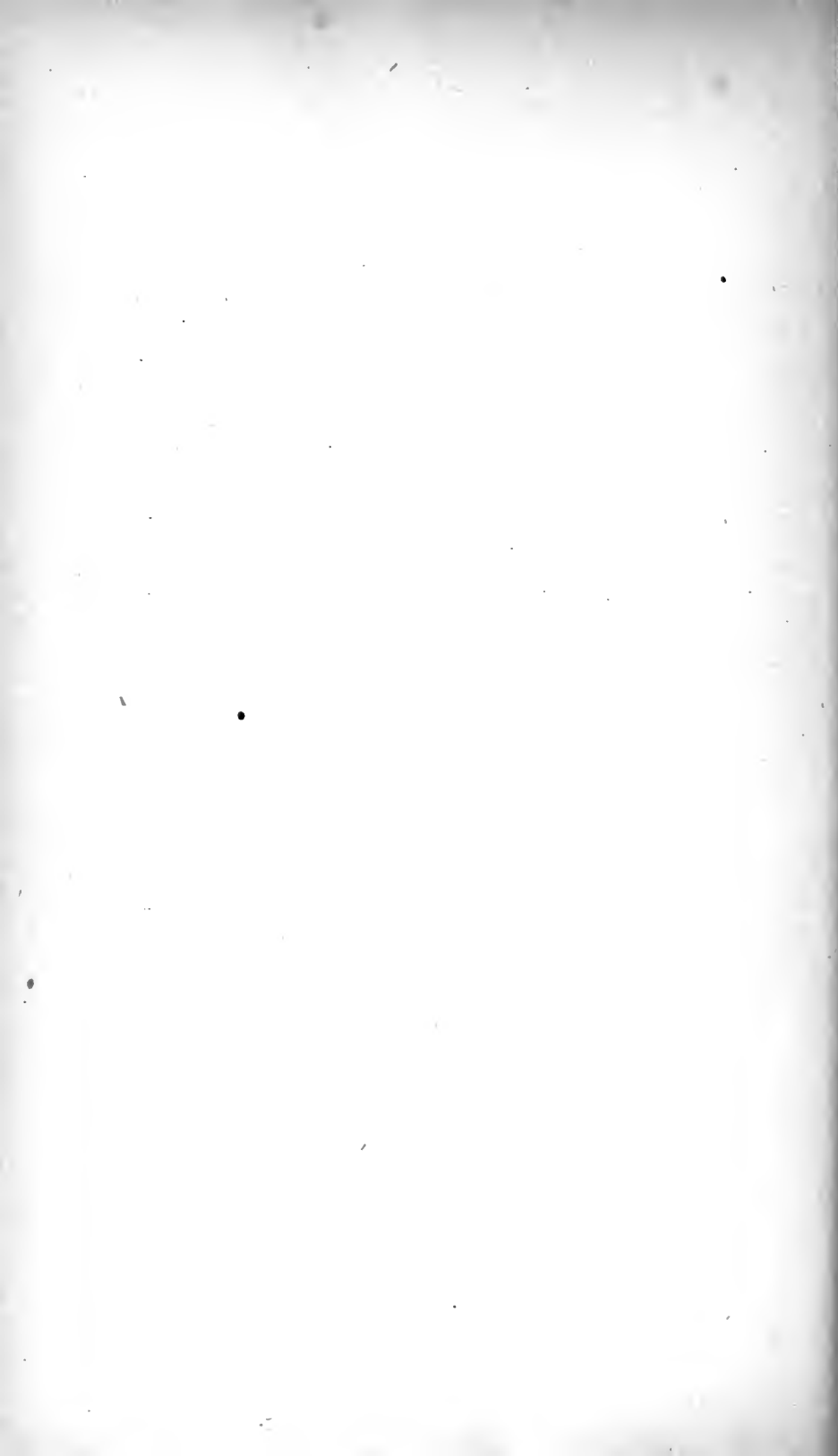
o Work not commenced. Expenditures made from 1855 to 1858.

p Never occupied as a marine hospital.

q Transferred to the War Department.

r Never occupied as a marine hospital. Sold for \$20,100, to be paid in five equal instalments—only one received up to date.

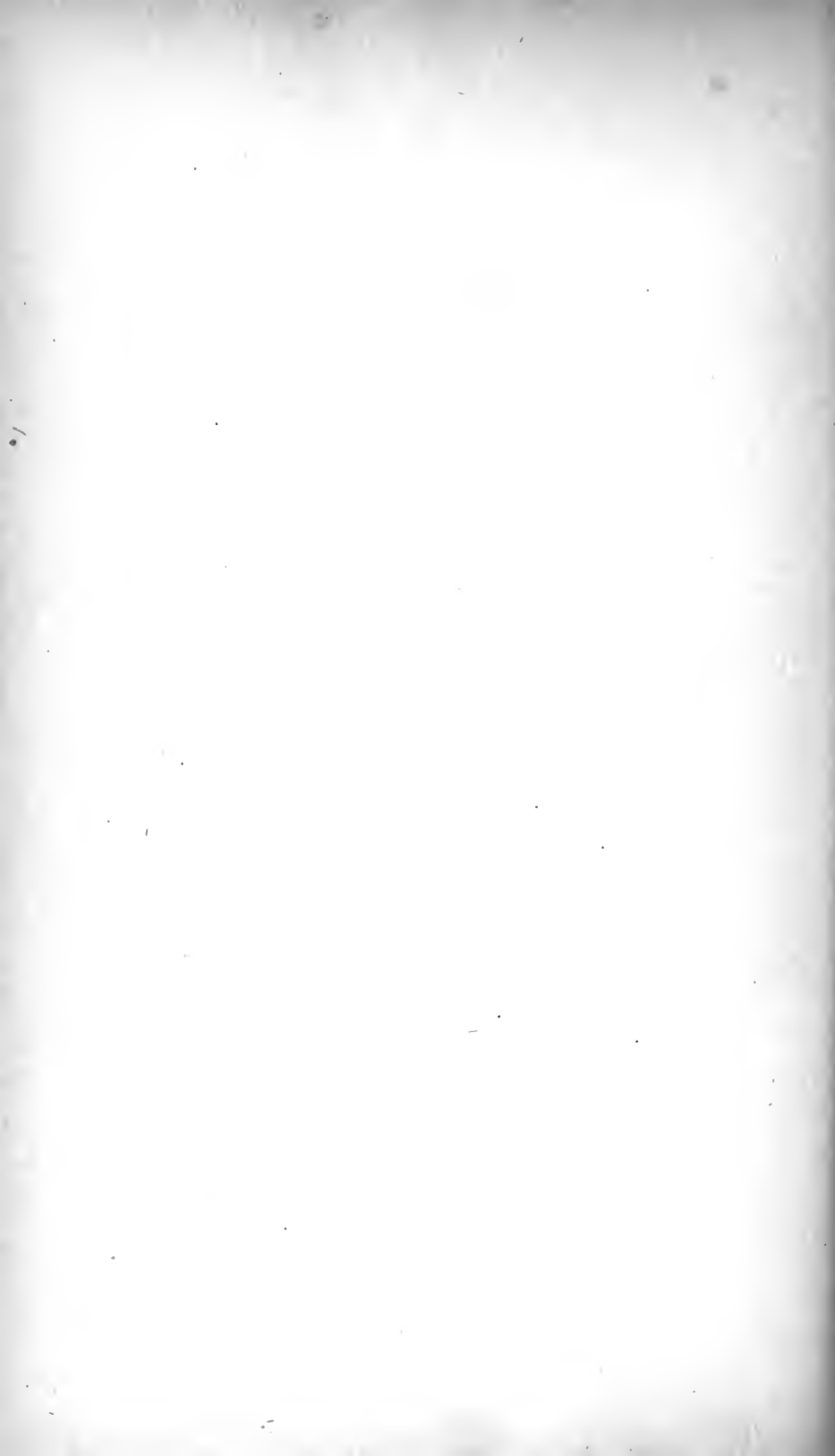
s No record of the establishment of a marine hospital at Port Angeles, Wash. Ter., has been found.



STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE.

MEDICAL AND SURGICAL.



STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE,

Fiscal Year 1874.

MEDICAL AND SURGICAL.

I.—Table of Hospital-Relief Districts.

[For convenience of administration, the Service is divided into nine (9) Geographical Districts, as follows:]

I. DISTRICT OF NEW ENGLAND—embracing the ports of

Bangor, Maine.	Ellsworth, Maine.	<i>b</i> Plymouth, Mass.
Barnstable, Mass.	<i>b</i> Fall River, Mass.	<i>a</i> Portland, Maine.
Bath, Maine.	Gloucester, Mass.	Portsmouth, N. H.
Belfast, Maine.	<i>b</i> Kennebunk, Maine.	<i>b</i> Saco, Maine.
<i>a</i> Boston, Mass.	Machias, Maine.	<i>b</i> Salem, Mass.
Burlington, Vt.	<i>b</i> Marblehead, Mass.	Waldoboro', Maine.
Castine, Maine.	<i>b</i> Nantucket, Mass.	Wiscasset, Maine.
Eastport, Maine.	New Bedford, Mass.	<i>b</i> York, Maine.
Edgartown, Mass.	Newburyport, Mass.	

II. NORTHERN ATLANTIC DISTRICT—embracing the ports of

Albany, N. Y.	<i>b</i> Newark, N. J.	<i>b</i> Perth Amboy, N. J.
Bargaintown, N. J.	New Haven, Conn.	Plattsburg, N. Y.
<i>b</i> Bridgeport, Conn.	New London, Conn.	Providence, R. I.
<i>b</i> Bridgetown, N. J.	Newport, R. I.	<i>b</i> Rochester, N. Y.
<i>b</i> Bristol, R. I.	New York, N. Y.	Sag Harbor, N. Y.
Cape Vincent, N. Y.	Ogdensburg, N. Y.	<i>b</i> Stonington, Conn.
<i>b</i> Lambertown, N. J.	Oswego, N. Y.	Tuckerton, N. J.
Middletown, Conn.		

III. MIDDLE ATLANTIC DISTRICT—embracing the ports of

Alexandria, Va.	Georgetown, D. C.	Richmond, Va.
<i>b</i> Annapolis, Md.	Norfolk, Va.	Tappahannock, Va.
Baltimore, Md.	<i>b</i> Petersburg, Va.	<i>b</i> Town Creek, Md.
Crisfield, Md.	Philadelphia, Pa.	Wilmington, Del.
<i>b</i> Eastville, Va.	Pittsburg, Pa.	<i>b</i> Yorktown, Va.

IV. SOUTHERN ATLANTIC DISTRICT—embracing the ports of

Beaufort, N. C.	Fernandina, Fla.	<i>b</i> St. Augustine, Fla.
Beaufort, S. C.	Georgetown, S. C.	<i>b</i> St. Mary's, Ga.
Brunswick, Ga.	Jacksonville, Fla.	Savannah, Ga.
Charleston, S. C.	<i>a</i> Key West, Fla.	Wilmington, N. C.
<i>b</i> Edenton, N. C.	New Berne, N. C.	

a At these ports relief is furnished in hospitals owned by the Government and maintained exclusively for seamen.

b At these ports hospital dues only were collected, no application for relief having been received at them during the year.

I.—*Table of Hospital-Relief Districts—Continued.*

V. DISTRICT OF THE GULF—embracing the ports of

Apalachicola, Fla.	Galveston, Texas.	Pensacola, Fla.
Brownsville, Texas.	Indianola, Texas.	<i>b</i> Shieldsboro', Miss.
Cedar Keys, Fla.	Mobile, Ala.	Shreveport, La.
<i>b</i> Corpus Christi, Texas.	Natchez, Miss.	Vicksburg, Miss.
<i>b</i> Franklin, La.	New Orleans, La.	

VI. DISTRICT OF THE PACIFIC—embracing the ports of

Astoria, Oregon.	Port Townsend, W. T.	San Francisco, Cal.
<i>b</i> Coos Bay, Oregon.	<i>b</i> San Diego, Cal.	Sitka, Alaska.
<i>b</i> Portland, Oregon.		

VII. DISTRICT OF THE GREAT LAKES—embracing the ports of

Buffalo, N. Y.	Dunkirk, N. Y.	<i>b</i> Niagara, N. Y.
<i>a</i> Chicago, Ill.	Erie, Pa.	Port Huron, Mich.
<i>a</i> Cleveland, Ohio.	<i>b</i> Grand Haven, Mich.	Sandusky, Ohio.
<i>a</i> Detroit, Mich.	Marquette, Mich.	Toledo, Ohio.
Du Luth, Minn.	Milwaukee, Wis.	

VIII. DISTRICT OF THE OHIO—embracing the ports of

Cincinnati, Ohio.	Memphis, Tenn.	<i>b</i> Parkersburg, W. Va.
Evansville, Ind.	Nashville, Tenn.	Wheeling, W. Va.
Louisville, Ky.	Paducah, Ky.	

IX. DISTRICT OF THE MISSISSIPPI—embracing the ports of

<i>b</i> Alton, Ill.	La Crosse, Wis.	<i>b</i> St. Joseph, Mo.
Cairo, Ill.	<i>b</i> Omaha, Nebraska.	<i>a</i> St. Louis, Mo.
Dubuque, Iowa.	Pembina, Minn.	St. Paul, Minn.
<i>b</i> Galena, Ill.	<i>b</i> Quincy, Ill.	

a At these ports relief is furnished in hospitals owned by the Government and maintained exclusively for seamen.

b At these ports hospital dues only were collected, no application for relief having been received at them during the year.

II.—*Statement, by Districts, of the Number of Patients treated each Month during the Year ended June 30, 1874.*

District.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Total.....	1,854	2,023	2,256	2,176	2,093	2,265	2,232	2,056	1,839	1,653	1,754	1,831
New England	272	268	275	257	265	288	270	230	204	180	216	208
Northern Atlantic.....	231	248	280	256	234	261	235	228	237	219	241	282
Middle Atlantic	232	265	302	279	293	320	319	291	253	247	256	221
Southern Atlantic	70	78	88	145	129	152	184	169	143	104	93	115
The Gulf	268	328	366	412	365	367	376	337	297	246	241	227
The Pacific.....	109	130	149	141	154	190	173	168	159	129	124	142
The Great Lakes	261	271	305	254	261	229	203	197	152	141	222	276
The Ohio	239	243	260	229	223	305	322	305	252	257	232	223
The Mississippi	172	192	231	173	169	153	150	131	142	130	129	137

III.—*Ratio of Patients treated in each District.*

District.	Per cent. of total patients.	District.	Per cent. of total patients.
New England	12. 41	The Pacific	6. 63
Northern Atlantic.....	13. 01	The Great Lakes.....	11. 72
Middle Atlantic.....	13. 88	The Ohio	12. 60
Southern Atlantic.....	6. 31	The Mississippi.....	8. 31
The Gulf.....	15. 13		

IV.—*Average Duration of Treatment (in Hospital) in each District.*

District.	Average duration.	District.	Average duration.
	<i>Days.</i>		<i>Days.</i>
New England	33. 22	The Great Lakes	30. 64
Northern Atlantic	27. 90	The Ohio	32. 65
Middle Atlantic.....	28. 88	The Mississippi.....	26. 75
Southern Atlantic.....	29. 86		
The Gulf	36. 49		
The Pacific	37. 90	General average.....	31. 58

V.—*Tabular Statement, by Months and Districts, of Diseases*

[Diseases marked with an asterisk are not specified as fully as is desirable. This is due in great measure of the Medical Officers of the Service not having been

[GRAND TOTAL OF ALL DISEASES.....11,545.

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.												
	1873.						1874.						
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
General Diseases.													
SECTION A.													
Total cases.....	3,022	250	407	606	447	242	161	125	85	105	112	150	210
<i>Small-pox</i>	2		1		1	4	2	3	3	2	1	4	
Total cases.....	25												
District of New England.....							1		1				
Northern Atlantic District.....						1			1				
Middle Atlantic District.....											1	3	
Southern Atlantic District.....			1				1	1					
District of the Gulf.....	2				1	2		2	1	2		1	
District of the Pacific.....						1			1				
District of the Ohio.....													
<i>Chicken-pox</i>		1							1			1	
Total cases.....	3												
Northern Atlantic District.....									1				
District of the Gulf.....												1	
District of the Ohio.....		1											
<i>Measles</i>		1	1		2	2	3		3	4		1	
Total cases.....	18												
District of New England.....			1		1	1	2		1	2		1	
Northern Atlantic District.....										1			
Middle Atlantic District.....						1						4	
District of the Pacific.....									1				
District of the Ohio.....		1					1		1				
District of the Mississippi.....					1					1			
<i>Scarlet Fever</i>				1									
Total cases.....	2												
District of New England.....													
Northern Atlantic District.....				1									
<i>Dengue</i>			8	21	5	2	1						
Total cases.....	37												
District of the Gulf.....			8	21	5	2	1						
<i>Typhus Fever</i>			1	1			1	1					
Total cases.....	4												
District of New England.....			1	1									
Middle Atlantic District.....								1					
District of the Great Lakes.....							1						
<i>Cerebro-spinal Fever</i>	2		1			1	4		1	1			
Total cases.....	12												
Middle Atlantic District.....	1		1						1				
Southern Atlantic District.....						1	4			1			
District of the Gulf.....	1												
<i>Enteric Fever</i>	15	25	21	17	21	6	4	3	6	5	11	16	
Total cases.....	168												
District of New England.....	6	14	12	10	4		1		2		6	9	
Northern Atlantic District.....	7	5	4	2	3	2		1	2		1	4	
Middle Atlantic District.....		1	1		7				1		2	2	
Southern Atlantic District.....			1	1		1		1	1	1			
District of the Gulf.....				1		1	1			1			
District of the Pacific.....				1		1							
District of the Great Lakes.....	1	4	3	2	5			1			1		
District of the Ohio.....	1	1			2		2			3	1		
District of the Mississippi.....						1						1	

and Injuries treated during the Year ended June 30, 1874.

ure to the absence of a uniform nosological standard, the *Nomenclature of Diseases* prepared for the issued until the commencement of the present fiscal year.]

GRAND TOTAL OF ALL INJURIES1,500.]

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
372	565	212	799	553	378	314	226	208	177	250	300	General Diseases.
SECTION A.												
Total cases.....3,022												
4	1	1	1	1	4	5	7	6	6	3	6	<i>Small-pox:</i> Total cases.....25
					1	1	1	1	1			District of New England.
												Northern Atlantic District.
		1	1			1	2	1		1	1	Middle Atlantic District.
3	1			1	2	2	3	2	4	2	2	Southern Atlantic District.
					1	1	1	2	1			District of the Gulf.
1												District of the Pacific.
												District of the Ohio.
	1	1						1			1	<i>Chicken-pox:</i> Total cases.....3
								1				Northern Atlantic District.
	1	1									1	District of the Gulf.
												District of the Ohio.
1	1	1		2	3	5	4	5	4	1	2	<i>Measles:</i> Total cases.....18
		1		1	1	3	2	2	2	1	1	District of New England.
1					1	1	1		1		1	Northern Atlantic District.
								1				Middle Atlantic District.
		1				1	1	2				District of the Pacific.
				1	1				1			District of the Ohio.
												District of the Mississippi.
1			1	1								<i>Scarlet Fever:</i> Total cases.....2
1				1								District of New England.
			1	1								Northern Atlantic District.
		8	25	16	8	1						<i>Dengue:</i> Total cases.....37
		8	25	16	8	1						District of the Gulf.
		1	2	1		1	1	1				<i>Typhus Fever:</i> Total cases.....4
		1	2	1			1	1				District of New England.
						1						Middle Atlantic District.
												District of the Great Lakes.
4	1	1			1	5	2	1	1	1	1	<i>Cerebro-spinal Fever:</i> Total cases.....12
2		1						1				Middle Atlantic District.
2	1				1	5	2		1	1	1	Southern Atlantic District.
												District of the Gulf.
33	40	49	37	41	30	21	20	16	12	16	28	<i>Enteric Fever:</i> Total cases.....168
18	24	27	23	17	9	6	6	4	2	8	17	District of New England.
8	8	11	3	4	5	4	3	2	1	1	5	Northern Atlantic District.
	1	2	1	8	3	1	1	2	2	2	2	Middle Atlantic District.
		1	2	1	2	1	1	2	2	1	1	Southern Atlantic District.
1			1		1	2	2	1	1	1		District of the Gulf.
			1	1	2							District of the Pacific.
2	5	6	6	8	5	3	3	3	1	1	1	District of the Great Lakes.
3	1	1	1	2	2	4	4	2	3	2	2	District of the Ohio.
1	1	1			1						1	District of the Mississippi.

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION A—Continued.												
<i>Simple Continued Fever</i>	4	4	.....	1	1	2	2	.....	1	2	2	1
Total cases.....	20											
District of New England.....		1	.....			1				1		1
Middle Atlantic District.....	1						1					
Southern Atlantic District.....		1										
District of the Gulf.....	2	2			1							
District of the Great Lakes.....	1						1		1	1	1	
District of the Ohio.....				1		1						
District of the Mississippi.....											1	
<i>Febricula</i>	1	1	1						3		1	2
Total cases.....	9											
District of New England.....								1				
Northern Atlantic District.....											1	2
Middle Atlantic District.....	1							2				
District of the Gulf.....		1	1									
<i>Yellow Fever</i>	1 ^a	17	54	28	2						1	1
Total cases.....	104											
Northern Atlantic District.....	1	4	3	2	1							
District of the Gulf.....		13	42	23							1	
District of the Ohio.....			5	3	1							
District of the Mississippi.....			4									1
<i>Ague</i>	135	191	318	221	123	81	67	38	51	48	78	108
Total cases.....	1,504											
District of New England.....	20	18	21	28	17	10	4	3	1	4	5	6
Northern Atlantic District.....	18	31	57	31	14	13	11	3	5	3	9	24
Middle Atlantic District.....	15	27	51	34	17	7	9	8	7	10	9	12
Southern Atlantic District.....	10	16	15	26	10	8	4	4	4	2	1	9
District of the Gulf.....	34	36	49	52	38	22	18	6	11	9	12	21
District of the Pacific.....	1	2	5	4	2	1		1	2	2		2
District of the Great Lakes.....	16	19	37	18	7	5	1	2	1	2	12	16
District of the Ohio.....	8	24	45	10	13	8	12	4	11	11	17	8
District of the Mississippi.....	13	18	38	18	5	7	8	7	9	5	13	10
<i>Remittent Fever</i>	74	154	195	151	74	51	32	21	25	35	50	61
Total cases.....	963											
District of New England.....	13	12	16	16	6	8	2		1	4	4	5
Northern Atlantic District.....	10	9	10	16	11	5	2		1	2	5	10
Middle Atlantic District.....	8	25	28	25	15	10	3	3	3	4	9	5
Southern Atlantic District.....	7	9	15	30	12	6	5	4	1	4	6	7
District of the Gulf.....	17	59	58	42	14	9	12	6	6	4	7	11
District of the Pacific.....	1	2	1		1	1						1
District of the Great Lakes.....	8	12	19	7	7	4	3	2	2	7	7	15
District of the Ohio.....	9	13	14	4	4	7	5	5	9	9	8	6
District of the Mississippi.....	1	13	34	11	4	1		1	2	1	4	1
<i>Simple Cholera</i>	3	4	.....	2	1		1					1

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.	
1873.						1874.							
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.		
4	5	2	3	2	2	4	2	1	3	2	3	General Diseases.	
SECTION A—Continued.													
<i>Simple Continued Fever:</i>													
Total cases.....												20	
District of New England.													
Middle Atlantic District.													
Southern Atlantic District.													
District of the Gulf.													
District of the Great Lakes.													
District of the Ohio.													
District of the Mississippi.													
<i>Febriola:</i>													
Total cases.....												9	
District of New England.													
Northern Atlantic District.													
Middle Atlantic District.													
District of the Gulf.													
<i>Yellow Fever:</i>													
Total cases.....												104	
Northern Atlantic District.													
District of the Gulf.													
District of the Ohio.													
District of the Mississippi.													
<i>Ague:</i>													
Total cases.....												1,504	
District of New England.													
Northern Atlantic District.													
Middle Atlantic District.													
Southern Atlantic District.													
District of the Gulf.													
District of the Pacific.													
District of the Great Lakes.													
District of the Ohio.													
District of the Mississippi.													
<i>Remittent Fever:</i>													
Total cases.....												963	
District of New England.													
Northern Atlantic District.													
Middle Atlantic District.													
Southern Atlantic District.													
District of the Gulf.													
District of the Pacific.													
District of the Great Lakes.													
District of the Ohio.													
District of the Mississippi.													
<i>Simple Cholera:</i>													
Total cases.....												13	
District of New England.													
Middle Atlantic District.													
Southern Atlantic District.													
District of the Great Lakes.													
District of the Ohio.													
District of the Mississippi.													
<i>Malignant Cholera:</i>													
Total cases.....												10	
District of the Ohio.													
District of the Mississippi.													
<i>Choleraic Diarrhoea:</i>													
Total cases.....												1	
Northern Atlantic District.													

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION A—Continued.												
<i>Diphtheria</i>		1				1	2		1	1	1	
Total cases.....		7										
Northern Atlantic District.....						1						
Middle Atlantic District.....		1					2			1	1	
Southern Atlantic District.....									1			
District of the Ohio.....												
<i>Mumps</i>					1			1	1	1	1	3
Total cases.....												
District of New England.....												1
Middle Atlantic District.....							1			1	1	1
District of the Gulf.....					1				1			
District of the Pacific.....												1
<i>Influenza</i>								2		2		1
Total cases.....												
Southern Atlantic District.....							2					1
District of the Gulf.....										1		
<i>Erysipelas</i>	8	3	4	4	11	11	6	12	12	11	3	10
Total cases.....												
District of New England.....	3				2	4				1		2
Northern Atlantic District.....		1		1				3	4			1
Middle Atlantic District.....			2	1	3	4	3	1	1	6	1	1
Southern Atlantic District.....						2	1	2			1	2
District of the Gulf.....	3		1			1		4	2			1
District of the Pacific.....					1				1			
District of the Great Lakes.....		2	1	1	3	1			1	3		2
District of the Ohio.....	1			1		1	1	2	3	1		1
District of the Mississippi.....	1				2		1				1	
<i>Pyæmia</i>		1						1			1	
Total cases.....												
Northern Atlantic District.....		1									1	
Middle Atlantic District.....								1				
SECTION B.												
Total cases.....	3,601	269	257	246	281	311	345	276	252	248	258	260
<i>Rheumatism</i> *.....	70	81	67	80	102	110	92	81	74	84	91	97
Total cases.....												
District of New England.....	9	11	8	13	12	11	13	6	7	8	13	10
Northern Atlantic District.....	9	13	3	7	12	15	11	12	18	14	18	18
Middle Atlantic District.....	10	11	13	14	19	22	13	9	9	15	14	23
Southern Atlantic District.....	1	3	2	6	4	5	11	7	6	6	10	7
District of the Gulf.....	9	6	7	8	16	20	15	8	12	8	8	4
District of the Pacific.....	3	14	8	9	6	13	6	9	6	5	8	7
District of the Great Lakes.....	12	10	12	9	14	15	6	10	3	8	11	18
District of the Ohio.....	9	10	9	7	11	14	12	12	10	10	5	5
District of the Mississippi.....	8	3	5	7	8	5	5	8	3	10	4	5
<i>Gout</i>		1			1	2	1	1			1	
Total cases.....												
Northern Atlantic District.....						1						
District of the Pacific.....		1			1		1	1			1	
District of the Mississippi.....						1						
<i>Syphilis</i> *.....	167	140	141	155	162	184	144	128	134	126	126	143
Total cases.....												
District of New England.....	12	8	13	24	19	18	10	7	5	12	8	8
Northern Atlantic District.....	31	18	22	18	15	23	19	10	24	13	22	34
Middle Atlantic District.....	29	21	23	32	32	40	24	19	25	22	23	14
Southern Atlantic District.....	2	5	9	5	9	19	18	14	6	4	7	5

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	1				1	3		1	2	2		General Diseases. SECTION A—Continued. <i>Diphtheria:</i> Total cases.....7 Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Ohio. <i>Mumps:</i> Total cases.....9 District of New England. Middle Atlantic District. District of the Gulf. District of the Pacific. <i>Influenza:</i> Total cases.....5 Southern Atlantic District. District of the Gulf. <i>Erysipelas:</i> Total cases.....105 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Pyemia:</i> Total cases.....3 Northern Atlantic District. Middle Atlantic District. SECTION B. Total cases.....3,601 <i>Rheumatism:*</i> Total cases.....1,128 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Gout:</i> Total cases.....7 Northern Atlantic District. District of the Pacific. District of the Mississippi. <i>Syphilis:*</i> Total cases....1,916 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District.
					1	1						
	1					2		1	1	2		
								1	1			
1	1			1	1		1	2	2	1	3	
											1	
1	1			1	1		1	1	1	1	1	
								1	1			
							2	2	2	1	2	
							2	2	1	1	2	
									1			
18	16	15	7	15	18	21	17	24	20	12	15	
7	5	4	1	2	5	4			1		2	
1	1	1	1	1			3	7	2	1	1	
1	1	2	2	4	5	8	3	3	7	7	2	
1	1				2	2	2	1		1	3	
4	3	3	1	1	1	1	4	5	3		1	
				1				1				
1	3	3	1	3	3	2	2	2	4	1	2	
2	2	2	1	1	1	2	2	4	2	1	2	
1				2	1	2	1	1	1	1		
	1						1			1		
	1						1			1		
590 573 550 568 613 753 733 684 620 549 548 562												
169	168	154	162	192	224	225	226	197	164	168	184	
19	21	15	15	21	23	26	23	19	14	21	19	
18	21	16	13	21	25	30	29	33	28	34	30	
32	27	28	29	35	40	37	34	27	27	31	41	
5	3	4	9	10	8	16	15	12	12	13	15	
20	23	22	23	32	43	38	37	33	26	18	14	
9	18	21	23	18	26	21	19	16	11	11	16	
25	23	21	22	22	16	18	23	16	14	19	28	
27	23	19	18	20	32	38	31	26	19	14	14	
14	9	8	10	13	11	11	15	10	13	7	7	
	1			1	2	2	2			1		
					1							
	1			1		1	2			1		
					1	1						
333	315	309	312	322	403	392	343	313	270	270	290	
37	27	25	41	47	46	33	22	18	21	20	22	
46	36	40	43	35	45	40	39	37	26	42	55	
45	43	47	50	56	74	77	62	50	42	38	36	
18	16	19	16	14	28	38	35	25	17	15	12	

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION B—Continued.												
<i>Syphilis</i> *—Continued.												
District of the Gulf.....	15	8	6	9	12	21	8	9	16	15	11	8
District of the Pacific.....	5	16	9	6	8	15	16	12	11	12	9	19
District of the Great Lakes.....	16	18	12	14	17	6	8	14	6	10	15	22
District of the Ohio.....	29	17	32	30	39	26	31	29	27	29	21	22
District of the Mississippi.....	28	29	15	17	21	16	10	14	14	9	10	11
<i>Cancer</i> *.....	1	4	1		1	1	1	1		2		
Total cases.....	12											
District of New England.....		1	1									
Northern Atlantic District.....		2					1					
District of the Gulf.....	1											
District of the Pacific.....					1					1		
District of the Great Lakes.....						1				1		
District of the Ohio.....		1						1				
<i>Tumors</i> *.....	2	2	3	2	1	1	1	2	2	3	2	1
Total cases.....	24											
District of New England.....		1		1								
Middle Atlantic District.....	1	1	1	1				1	1	1	1	
District of the Gulf.....	1		1		1							
District of the Pacific.....			1								1	
District of the Great Lakes.....						1				1		
District of the Ohio.....							1	1	1			
District of the Mississippi.....										1		1
<i>Scrofula</i> *.....	1	3	3	4	2	1	1	2	2	2	1	
Total cases.....	30											
District of New England.....		1		1								
Middle Atlantic District.....		1	2									
District of the Gulf.....		1	1	1	1			1	1	1		
District of the Pacific.....				1		1		1				
District of the Great Lakes.....	1										1	
District of the Ohio.....				1	1				1	1		
District of the Mississippi.....							1					
<i>Phthisis Pulmonalis</i>	19	19	20	27	27	22	29	29	29	35	28	29
Total cases.....	345											
District of New England.....	7	3	4	5	6	4	8	3	1	5	5	6
Northern Atlantic District.....	7	5	10	13	13	6	6	12	13	15	14	8
Middle Atlantic District.....		3	2	2	1	4	1	1	2	1	2	4
Southern Atlantic District.....				2		2	1	1	3	3		
District of the Gulf.....	2	2	1	2	1	1	6	6	4	4	2	1
District of the Pacific.....		2			4	2	4	4	2	1	1	3
District of the Great Lakes.....	2	1	1	1	2	9	1		2	3	4	3
District of the Ohio.....	1	2	2	1		1	1	1	1	3		4
District of the Mississippi.....		1		1		2	1	1	1			
<i>Tabs Mesenterica</i>	1											
Total cases.....	1											
Middle Atlantic District.....	1											
<i>Morbus Coxæ</i>		1						1	1			
Total cases.....	3											
District of the Gulf.....		1							1			
District of the Pacific.....								1				
<i>Diabetes</i>					1	1	1				1	
Total cases.....	4											
Middle Atlantic District.....					1							
District of the Pacific.....						1	1				1	
<i>Purpura</i>							1					
Total cases.....	1											
District of the Mississippi.....							1					

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
34	34	30	25	26	40	39	36	39	39	34	29	General Diseases. SECTION B—Continued. <i>Syphilis</i> *—Continued. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Cancer</i> * Total cases.....12 District of New England. Northern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. <i>Tumors</i> * Total cases.....24 District of New England. Middle Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Scrofula</i> * Total cases.....30 District of New England. Middle Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Phthisis Pulmonalis</i> : Total cases.....348 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Tubes Mesenterica</i> : Total cases.....1 Middle Atlantic District. <i>Morbus Coxæ</i> : Total cases.....3 District of the Gulf. District of the Pacific. <i>Diabetes</i> : Total cases.....4 Middle Atlantic District. District of the Pacific. <i>Purpura</i> : Total cases.....1 District of the Mississippi.
25	32	25	20	23	34	35	17	30	25	20	31	
30	32	26	21	32	28	24	32	25	24	28	36	
55	39	50	65	49	66	70	69	57	53	52	47	
43	56	47	31	40	42	36	31	32	23	21	22	
1	5	3	.....	1	1	2	3	2	3	.....	.....
.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	2	2	.....	.....	.....	1	1	.....	.....	.....	.....
1	1	.....	.....	1	.....	.....	.....	.....	1	.....	.....
.....	.....	.....	.....	.....	1	1	1	1	2	.....	.....
.....	1	.....	.....	.....	.....	.....	1	1	.....	.....	.....
4	4	4	6	2	1	2	4	4	4	5	3	
1	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
1	2	2	3	.....	.....	.....	1	1	1	1	.....
1	.....	1	1	1	.....	.....	.....	.....	.....	.....	.....
.....	1	1	1	1	.....	.....	.....	.....	.....	1	1
1	1	.....	.....	.....	1	1	1	1	1	1	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1
9	9	7	7	7	6	6	5	7	6	3	1	
1	2	.....	1	1	1	1	1	1	.....	.....	.....
2	1	3	2	1	.....	.....	.....	.....	.....	.....	.....
.....	1	2	1	2	2	2	1	2	3	1	.....
.....	.....	.....	1	1	1	1	1	1	.....	.....	.....
1	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
3	2	.....	1	2	2	1	1	2	3	1	1
2	2	2	1	.....	.....	1	1	1	.....	.....	.....
54	53	53	54	61	80	75	79	82	86	81	71	
9	7	8	8	9	13	14	17	14	10	15	14	
21	20	24	24	29	29	22	28	31	39	37	25	
3	6	6	5	4	8	7	3	5	4	3	6	
1	.....	.....	2	1	3	3	2	3	6	4	1
7	7	2	4	4	4	10	12	11	11	8	6	
2	4	4	3	7	9	10	10	7	5	6	7	
5	3	3	2	4	9	4	3	5	7	6	7	
5	5	5	4	2	2	3	2	3	3	1	5	
1	1	1	2	1	3	2	2	3	1	1	.....
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	.....	.....	.....	.....	.....	1	2	.....	.....	.....
.....	
.....	1	.....	.....	.....	.....	.....	1	1	.....	.....	.....
.....	
.....	.....	.....	.....	1	1	1	1	.....	.....	1	1
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	1	1	1	.....	.....	1	1
.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Vertigo</i>	1	1	1	1		1						
Total cases.....	5											
District of the Gulf.....	1	1				1						
District of the Pacific.....			1	1								
<i>Sunstroke</i>	7	3	1							1		5
Total cases.....	18											
District of New England.....		2										
Northern Atlantic District.....												1
Middle Atlantic District.....	1											2
District of the Gulf.....	4											
District of the Ohio.....	2	1								1		1
District of the Mississippi.....			1									1
<i>Hydrocephalus</i>												
Total cases.....	1											
District of the Ohio.....												
<i>Not specified</i>									2			
Total cases.....	2											
Middle Atlantic District.....									2			
OTHER DISEASES OF THE NERVOUS SYSTEM												
Total cases.....	30	23	20	22	25	28	26	28	26	22	26	20
<i>Paralysis</i>	9	10	5	7	6	5	1	7	5	5	5	3
Total cases.....	77											
District of New England.....	3	4	1	1	1			2			2	
Northern Atlantic District.....	1		1	2		1						
Middle Atlantic District.....	2		1	1	1					4		
Southern Atlantic District.....	1					1					1	1
District of the Gulf.....		3				3		2	1		2	1
District of the Pacific.....	1	1	1		2		1	2	3			1
District of the Great Lakes.....	1	1	1	2	2							
District of the Ohio.....		1		1				1	1	1		
<i>Hemiplegia</i>		1		1	2	1			1	1		1
Total cases.....	9											
District of New England.....										1		
Northern Atlantic District.....		1										
Middle Atlantic District.....				1	2	1						
Southern Atlantic District.....									1			1
District of the Gulf.....												
<i>Paraplegia</i>							1					
Total cases.....	1											
District of the Great Lakes.....							1					
<i>Locomotor Ataxy</i>							1		1			1
Total cases.....	3											
District of New England.....									1			
District of the Pacific.....							1					1
<i>Epilepsy</i>		2	2	1	1	3	2	2	1	2	1	3
Total cases.....	20											
District of New England.....				1	1	1						1
Northern Atlantic District.....							1					
Middle Atlantic District.....									1		1	
Southern Atlantic District.....							1			1		
District of the Pacific.....		1	1					1				1
District of the Great Lakes.....			1			2		1				1
District of the Ohio.....		1								1		1
<i>Shaking Palsy</i>											1	
Total cases.....	1											
Middle Atlantic District.....											1	

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
1	1	2	1		1	1						Local Diseases.
1	1	1			1	1						
1		1	1									<i>Vertigo:</i> Total cases.....5
8	5	2	2	1					1		5	District of the Gulf.
	2											District of the Pacific.
1											1	<i>Sunstroke:</i> Total cases.....18
4	2										2	District of New England.
2	1	1	1	1							1	Northern Atlantic District.
1		1	1						1		1	Middle Atlantic District.
1											1	District of the Gulf.
1												District of the Ohio.
1												District of the Mississippi.
1												<i>Hydrocephalus:</i> Total cases.....1
1												District of the Ohio.
								2	1			<i>Not specified:</i> Total cases.....2
								2	1			Middle Atlantic District.
50	62	60	51	52	63	60	69	71	67	60	54	{ OTHER DISEASES OF THE NERVOUS SYSTEM:
18	28	27	21	19	19	16	18	15	19	18	18	Total cases.....316
6	10	6	3	3	1		2			2	1	<i>Paralysis:</i> Total cases.....77
3	3	4	5	4	4	4	3	3	3	1		District of New England.
2	2	3	2	2	2	2	1		4	4	3	Northern Atlantic District.
2	2	2	1	1	2	1	1			1	2	Middle Atlantic District.
2	5	4	3	3	5	3	4	3	3	3	4	Southern Atlantic District.
1	2	3	1	2	2	3	5	7	6	6	7	District of the Gulf.
1	2	3	4	3	2	2						District of the Pacific.
1	2	2	2	1	1	1	2	2	3	1	1	District of the Great Lakes.
1												District of the Ohio.
1	1	1	1	3	4	2	1	1	2	1	1	<i>Hemiplegia:</i> Total cases.....9
	1	1							1			District of New England.
			1	3	4	2	1					Northern Atlantic District.
1								1	1	1	1	Middle Atlantic District.
												Southern Atlantic District.
												District of the Gulf.
						1	1	1				<i>Paraplegia:</i> Total cases.....1
						1	1	1				District of the Great Lakes.
						1	1	2	1	1	1	<i>Locomotor Ataxy:</i> Total cases.....3
								1	1	1		District of New England.
						1	1	1			1	District of the Pacific.
	2	4	3	3	5	6	6	5	6	6	7	<i>Epilepsy:</i> Total cases.....20
			1	1	1	1	1				1	District of New England.
						1		1	1	2	1	Northern Atlantic District.
									1	1		Middle Atlantic District.
	1	2	1	1	1	1	2	2	2	2	2	Southern Atlantic District.
		1	1	1	3	2	3	2	1		1	District of the Pacific.
	1	1							1	1	2	District of the Great Lakes.
												District of the Ohio.
										1		<i>Shaking Palsy:</i> Total cases.....1
										1		Middle Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Chorea</i>							1					
Total cases.....	1						1					
District of the Ohio.....												
<i>Neuralgia</i> *.....	20	10	13	11	16	18	17	19	17	14	17	10
Total cases.....	191											
District of New England.....	2	2	3			3		1	1	1	3	2
Northern Atlantic District.....		1		1		1	1		7	2	1	2
Middle Atlantic District.....		1	1			1	2	5		3	1	
Southern Atlantic District.....				1	3							
District of the Gulf.....	9	1	5	5	5	6	6	7	3	3	4	3
District of the Pacific.....	4	1		4	5	3	4	4	4	1	4	3
District of the Great Lakes.....	3	2	3		1	2			1	1	3	
District of the Ohio.....	1	1			1	2	4	2	1	3	1	
District of the Mississippi.....	1	1	1		1							
<i>Insanity</i>	1			1		1	3		1		1	2
Total cases.....	11											
District of New England.....				1					1			
Northern Atlantic District.....											1	1
Southern Atlantic District.....							1					1
District of the Gulf.....	1					1	2					
<i>Melancholia</i>				1							1	
Total cases.....	2											
Southern Atlantic District.....				1							1	
DISEASES OF THE EYE.....	7	5	8	14	13	19	17	8	6	3	10	15
Total cases.....	143											
<i>Conjunctivitis</i>	2	3	1	5	7	12	6	1	1	2	1	8
Total cases.....	54											
District of New England.....				1	1		3					
Northern Atlantic District.....										1		
Middle Atlantic District.....				2								
District of the Gulf.....					1	7	1					1
District of the Pacific.....	1	1			1	1	1					2
District of the Great Lakes.....	1	1			2	1		1		1		4
District of the Ohio.....		1	1	1	2	3					1	1
District of the Mississippi.....				1			1		1			
<i>Ophthalmia</i> *.....	1		2	3	3	2	2	3	1		2	1
Total cases.....	25											
Middle Atlantic District.....								1	1			
Southern Atlantic District.....						1						
District of the Gulf.....					1			1				1
District of the Great Lakes.....	1		1	3	2		1				1	
District of the Ohio.....			1								1	
District of the Mississippi.....						1	1	1				
<i>Keratitis</i>				1			2	1				
Total cases.....	4											
Northern Atlantic District.....							2	1				
District of the Ohio.....				1								
<i>Sclerotitis</i>										1	1	
Total cases.....	2											
Northern Atlantic District.....										1	1	
<i>Iritis</i>	2	2	3	2	1	3	5	3	4		5	3
Total cases.....	35											
District of New England.....			1	1		1	1				1	2
Northern Atlantic District.....	1				1		2	1	1			
Middle Atlantic District.....									1			
Southern Atlantic District.....												1
District of the Gulf.....			1			2		1	1		1	

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
DISEASES OF THE NOSE						2	1	1				
Total cases.....	4											
<i>Ozena</i>						1	1					
Total cases.....	2											
Middle Atlantic District							1					
District of the Ohio.....						1						
<i>Epistaxis</i>								1				
Total cases.....	1											
District of the Great Lakes								1				
<i>Polypus</i>						1						
Total cases.....	1											
Northern Atlantic District						1						
DISEASES OF THE HEART AND ITS } MEMBRANES..... }	6	8	4	9	9	10	12	8	11	8	13	8
Total cases.....	110											
<i>Pericarditis</i>		1		1	1	1	2	1	1	2	1	
Total cases.....	12											
District of New England.....							1					
Northern Atlantic District										1		
Middle Atlantic District.....				1		1	1					
District of the Pacific.....		1			1			1		1	1	
District of the Great Lakes.....									1			
<i>Dropsy of the Pericardium</i>	1							1		1	1	
Total cases.....	6											
District of New England.....										1		
District of the Gulf.....	1							1				
District of the Ohio.....												
District of the Mississippi.....											1	
<i>Endocarditis</i>	1				1			1		1		
Total cases.....	4											
District of New England.....					1							
Southern Atlantic District.....								1				
District of the Gulf.....										1		
District of the Great Lakes.....	1											
<i>Valve-disease</i>		1	3	4	4	8	6	3	7	3	9	8
Total cases.....	57											
District of New England.....		1	1		2	1					1	
Northern Atlantic District.....				2	1	4		2	1	1	3	6
Middle Atlantic District.....									2	1	2	
Southern Atlantic District.....							1					
District of the Gulf.....				1		1	3	1	2	1	2	1
District of the Pacific.....						1			2		1	1
District of the Great Lakes.....					1		2					
District of the Ohio.....			1	1		1						
District of the Mississippi.....			1									
<i>Hypertrophy</i>	1	3					1	1	1		2	
Total cases.....	9											
District of New England.....								1				
Northern Atlantic District.....		1					1					
Middle Atlantic District.....		1										
District of the Pacific.....	1	1							1		1	
District of the Great Lakes.....											1	
<i>Dilatation</i>					1							
Total cases.....	1											
Southern Atlantic District.....					1							

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
					2	3	2	2	1			Local Diseases. DISEASES OF THE NOSE: Total cases.....4 <i>Ozæna:</i> Total cases.....2 Middle Atlantic District. District of the Ohio. <i>Epistaxis:</i> Total cases.....1 District of the Great Lakes..... <i>Polypus:</i> Total cases.....1 Northern Atlantic District.
					1	2	1	1				
					1	1	1	1				
							1	1	1			
							1	1	1			
					1	1						
					1	1						
10	12	13	17	14	21	21	20	24	19	23	18	
1	1	1	1	1	1	3	3	3	3	2		
1						1			1			
	1	1	1	1	1	2	2	1	1	2		
							1	1	1			
3	1	1	1	1			1	1	2	2	2	
1	1	1	1	1			1	1	1	1	1	
2										1	1	
1				1	1	1	1		1			
				1	1	1	1					
1									1			
1	2	4	8	7	14	12	12	14	10	14	14	
	1	1	1	3	4	1	1	1		1		
1	1	1	3	2	6	3	4	3	3	4	8	
								2	2	2	1	
				1	1	1	3	4	5	4	4	
						1		2	2	1	1	
		1	2	1	1	3	2	1	1	1	1	
		1	1		1	1	1					
1	3	2	1			1	1	2		2		
							1	1				
	1					1						
1	1	1	1					1		1		
										1		
				1	1							
				1	1							

V.—*Tabular Statement, by Months and Districts, of Diseases and*

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Fatty Degeneration</i>				1			1					
Total cases.....												
District of the Gulf.....							1					
District of the Pacific.....				1								
<i>Heart Disease, (not specified)</i>	3	3	1	3	2	1	2	1	2	1		
Total cases.....												
District of New England.....										1		
Northern Atlantic District.....				1								
Middle Atlantic District.....	2	1	1		1	1	1		1			
Southern Atlantic District.....				1								
District of the Gulf.....		1						1	1			
District of the Pacific.....	1											
District of the Great Lakes.....		1		1	1		1					
DISEASES OF THE BLOOD-VESSELS.....	1	5	1	3	1	4	5	4	1	2	3	2
Total cases.....												
<i>Aneurism*</i>		1			1	2	2	2	1	1	3	
Total cases.....												
District of New England.....						1		1			1	
Northern Atlantic District.....						1	1		1	1		
District of the Gulf.....					1							
District of the Pacific.....							1	1			1	
District of the Great Lakes.....		1										
District of the Ohio.....											1	
<i>Phlebitis*</i>							2					
Total cases.....												
Middle Atlantic District.....							1					
District of the Ohio.....							1					
<i>Varicose Veins*</i>	1	4	1	3		2	1	2		1		2
Total cases.....												
District of New England.....						1						
Middle Atlantic District.....		3	1	1		1						1
Southern Atlantic District.....				2								
District of the Gulf.....		1						1		1		
District of the Great Lakes.....	1						1	1				1
District of the Ohio.....						1						
DISEASES OF THE GLANDS.....	1	1	2	2	2	1	2	2	1	3	8	3
Total cases.....												
<i>Inflammation of Absorbents</i>	1	1	2	2	2	1	2	2	1	2	8	3
Total cases.....												
District of New England.....					1				1		1	2
District of the Gulf.....											1	
District of the Pacific.....							2					1
District of the Great Lakes.....	1		2	1								
District of the Ohio.....				1	1	1		2		2	6	
District of the Mississippi.....		1										
<i>Goitre</i>										1		
Total cases.....												
District of the Ohio.....										1		
DISEASES OF THE RESPIRATORY } SYSTEM.....	45	40	42	48	86	116	108	85	84	90	77	57
Total cases.....												
<i>Coryza</i>	1				1		1				1	
Total cases.....												
Southern Atlantic District.....							1				1	
District of the Great Lakes.....	1											
District of the Ohio.....					1							

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Laryngitis</i>		2			3	4		1		2		2
Total cases.....												
Northern Atlantic District.....		1			1	1						1
Middle Atlantic District.....								1				
Southern Atlantic District.....												1
District of the Gulf.....					1	1				1		
District of the Pacific.....					1	1						
District of the Lakes.....		1			1							
District of the Ohio.....						1						
District of the Mississippi.....										1		
<i>Bronchial Catarrh</i>	2	3	1	3	5	5	5	6	4	1	5	5
Total cases.....												
District of New England.....	1											
Northern Atlantic District.....		1										
Middle Atlantic District.....		1		1			1	2				
Southern Atlantic District.....		1					1	1		1		1
District of the Gulf.....	1		1	2	2		2	1			3	
District of the Pacific.....					1				1			
District of the Great Lakes.....						1					2	2
District of the Ohio.....					2	4	1	2	3			1
District of the Mississippi.....												1
<i>Bronchitis</i>	25	16	22	28	46	63	48	34	36	34	32	25
Total cases.....												
District of New England.....	1	1	4	2	6	6	5	2	4	2	5	2
Northern Atlantic District.....	2	1	1	2	3	2	5	2	4	2	1	1
Middle Atlantic District.....	4		3	2	10	17	4	8	12	7	8	4
Southern Atlantic District.....		2			2	4	2		1	2	1	2
District of the Gulf.....	2	1	3	6	4	5	6	3	1	3	7	1
District of the Pacific.....	2	3	3	2	5	9	7	4	4	2	1	4
District of the Great Lakes.....	9	4	3	7	5	5	3		3	7	5	5
District of the Ohio.....	2	1	2	2	4	7	10	7	4	5	1	5
District of the Mississippi.....	3	3	3	5	7	8	6	8	3	4	3	1
<i>Asthma</i>	1	4	2	2	3	4	6	2	4	4	7	4
Total cases.....												
District of New England.....							1				1	
Northern Atlantic District.....						1	3				1	1
Middle Atlantic District.....						1	1		1	1		
Southern Atlantic District.....						1						2
District of the Gulf.....		3				1		1	2		1	1
District of the Pacific.....					1		1				1	
District of the Great Lakes.....	1	1	2	1	2				1	2		
District of the Ohio.....				1				1	1	2	1	
<i>Pneumonia</i>	13	10	10	10	22	32	35	27	26	36	23	13
Total cases.....												
District of New England.....	6	1	6		5		7	4	5	7	5	3
Northern Atlantic District.....	2		1		2	3	2	5	3	7		2
Middle Atlantic District.....		2		2	2	4		4	2	5	4	
Southern Atlantic District.....		1				2	8	5	1	1		
District of the Gulf.....	1				1	7	9	4	4	1	1	2
District of the Pacific.....				1	2	1	1	1	1			
District of the Great Lakes.....	4	4	3	5	4	5	2	1	5	6	11	6
District of the Ohio.....		1		2	5	10	4	2	3	6		
District of the Mississippi.....		1			1		2	1	2	3	2	
<i>Congestion of the Lungs</i>			2	1	1	1	5	2	2	3	2	2
Total cases.....												
District of New England.....				1								1
Northern Atlantic District.....							1					
Middle Atlantic District.....							1	1	1	1		
Southern Atlantic District.....					1	1	1	1				
District of the Gulf.....							1					
District of the Pacific.....			1									
District of the Great Lakes.....				1					1	2		1

[illegible]

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
1						1				1	1	Local Diseases. <i>Congestion of the Lungs</i> —Continued. District of the Ohio. District of the Mississippi. <i>Emphysema of the Lungs:</i> Total cases.....2 Southern Atlantic District. District of the Pacific. <i>Pleurisy:</i> Total cases.....83 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Empyema:</i> Total cases.....2 Northern Atlantic District. Middle Atlantic District. DISEASES OF THE DIGESTIVE SYSTEM. Total cases .....1,284 <i>Stomatitis:</i> Total cases.....1 District of the Gulf..... <i>Ulcer of the Tongue:</i> Total cases.....1 District of the Gulf. <i>Sore Throat:</i> Total cases.....2 District of the Pacific. District of the Great Lakes. <i>Ulcerated Throat:</i> Total cases .....2 District of New England. Southern Atlantic District. <i>Tonsillitis:</i> Total cases.....42 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Sloughing Sore Throat:</i> Total cases.....2 Northern Atlantic District. <i>Elongated Uvula:</i> Total cases.....1 District of the Ohio.
				1	1		1	1		1	1	
10	8	9	10	11	11	14	19	23	20	10	8	
		1	2	2			2	2	4	3		
1					1	3	3	2	1	1		
	1	3	2	3	2		1	3	4	1	2	
			1	1	2	3		4	2		1	
3	2	2	2	2	1	2	4	3				
1		1	1	2	2	2	3	2	1	1	2	
2	3	1	1	2	2	1	1			2	1	
3	2	1	1	1		1	3	6	7	1	2	
									1	1		
									1			
										1		
220	205	178	170	167	203	211	180	170	153	175	197	
1												
1												
		1										
		1										
				2								
				1								
				1								
									1	2	2	
									1	1	1	
										1	1	
4	4	1	2	3	2	5	9	7	8	9	8	
1	1	1	1			2	3	3	3	4	2	
	1				1		1			1	2	
			1	2					1	3	1	
1	1					1	1	2			1	
1	1						2					
						1	1	2	1			
1				1	1				1	1	1	
								2			1	
								2				
										1		
											1	

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Pharyngitis</i>		1	2	1	1	2	8		2	1		4
Total cases.....												
District of New England.....							2					1
Northern Atlantic District.....		1							1			
Middle Atlantic District.....				1		1	2					1
Southern Atlantic District.....							1					
District of the Gulf.....			1									2
District of the Pacific.....			1		1	1	1		1	1		
District of the Ohio.....							2					
<i>Salivation*</i>		1	1	1				1				
Total cases.....												
District of the Gulf.....		1						1				
District of the Pacific.....			1									
District of the Mississippi.....				1								
<i>Salivary Fistula</i>								1				
Total cases.....												
District of the Pacific.....								1				
<i>Gastritis</i>	6	3	2	6	3	8	1	3	2	4	3	3
Total cases.....												
District of New England.....		1	1				1		1			
Northern Atlantic District.....	1			1		1		1		1		
Middle Atlantic District.....						2			1			
Southern Atlantic District.....						1		1				
District of the Gulf.....		1			1	1						1
District of the Pacific.....	1				1	1				1	1	1
District of the Great Lakes.....	3		1	5	1	1		1			1	1
District of the Ohio.....		1			1					2		1
District of the Mississippi.....	1					1					1	
<i>Chronic Ulcer of Stomach</i>							1					
Total cases.....												
District of the Great Lakes.....							1					
<i>Dyspepsia</i>	2	6	7	5	2	10	8	5	4	2	10	7
Total cases.....												
District of New England.....		2	2	2		4	2	1	2		3	3
Northern Atlantic District.....		2				2			1		1	
Middle Atlantic District.....	2	1	4	1			1	2	1		3	1
Southern Atlantic District.....						1					1	
District of the Gulf.....							3	1				1
District of the Pacific.....		1			1	1	2			1	1	1
District of the Great Lakes.....				1								1
District of the Ohio.....						1		1				
District of the Mississippi.....			1	1	1	1				1	1	
<i>Gastrodynia</i>	1	1		1							2	
Total cases.....												
District of the Gulf.....		1		1								
District of the Ohio.....	1											
District of the Mississippi.....											2	
<i>Enteritis</i>	1	1	2	1	1	5	5		3	1	1	
Total cases.....												
District of New England.....	1					4				1		
Northern Atlantic District.....			1						1			
Middle Atlantic District.....			1									
District of the Gulf.....		1			1		4				1	
District of the Pacific.....				1			1					
District of the Great Lakes.....									2			
District of the Ohio.....						1						
<i>Typhlitis</i>									1			
Total cases.....												
Southern Atlantic District.....									1			

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
2	2	3	2	3	3	10	4	2	2	1	4	Local Diseases.
						2	1				1	<i>Pharyngitis:</i>
	1							1				Total cases.....24
2	1	1	1	1	1	2	1				1	District of New England.
						1	1					Northern Atlantic District.
		1	1	1							2	Middle Atlantic District.
				1	2	3		1	2	1		Southern Atlantic District.
						2	1					District of the Gulf.
												District of the Pacific.
												District of the Ohio.
	1	1	2				1					<i>Salivation:*</i>
	1						1					Total cases.....4
		1	1									District of the Gulf.
			1	1								District of the Pacific.
				1								District of the Mississippi.
							1					<i>Salivary Fistula:</i>
							1					Total cases.....1
												District of the Pacific.
8	7	5	8	9	12	10	8	6	6	7	6	<i>Gastritis:</i>
	1	2	1			1	1	1	1			Total cases.....46
1			1	1	1	1	2	1	1			District of New England.
					2	2		1				Northern Atlantic District.
					1		1	1				Middle Atlantic District.
	1	1	1	1	2	1					1	Southern Atlantic District.
1	1				1	1	1		1	2	1	District of the Gulf.
3	1	1	5	6	3	2	2	1	1	2	2	District of the Pacific.
2	3	1		1	1	1	1			2	1	District of the Great Lakes.
1				1	1	1				1	1	District of the Ohio.
												District of the Mississippi.
						1	1					<i>Chronic Ulcer of Stomach:</i>
						1	1					Total cases.....1
												District of the Great Lakes.
6	7	10	7	7	13	11	12	11	5	12	12	<i>Dyspepsia:</i>
	2	3	3	2	6	3	4	4	1	3	3	Total cases.....72
	2	1			2	1	1	1		1	1	District of New England.
4	2	5	2	2		1	2	2		3	2	Northern Atlantic District.
					1					1	1	Middle Atlantic District.
1						3	3	2	1		1	Southern Atlantic District.
	1				2	2	1	1	2	2	2	District of the Gulf.
1			1	1	2							District of the Pacific.
					1		1	1				District of the Great Lakes.
		1	1	2	1	1			1	2	1	District of the Ohio.
												District of the Mississippi.
1	1	1	1							2	1	<i>Gastrodynia:</i>
	1	1	1									Total cases.....5
												District of the Gulf.
										2	1	District of the Ohio.
												District of the Mississippi.
2	2	3	1	1	6	8	4	5	2	3		<i>Enteritis:</i>
	1				4	2	1	1	1	1		Total cases.....22
		1						1				District of New England.
		1										Northern Atlantic District.
	1	1		1	1	5	3	1		1		Middle Atlantic District.
			1			1						District of the Gulf.
								2	1	1		District of the Pacific.
					1							District of the Great Lakes.
								1				District of the Ohio.
								1				<i>Typhlitis:</i>
												Total cases.....1
								1				Southern Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Dysentery</i>	21	28	19	24	18	16	20	10	19	15	22	28
Total cases.....	254											
District of New England.....	2	2	1	1	2	2	2	1		1	3	1
Northern Atlantic District.....	1	1	3		1		3				3	5
Middle Atlantic District.....	5	1		2	1	1		1	2	1	2	3
Southern Atlantic District.....	1	1		2	2	3	1			1		
District of the Gulf.....	3	5	3	5	3	5	2	1	6	5	4	4
District of the Pacific.....		1	2	1		1	1			1		
District of the Great Lakes.....	1	8	1	5	2				1	2		2
District of the Ohio.....	6	9	6	5	3	3	7	7	3	1	4	7
District of the Mississippi.....	2		3	3	4	1	4		3	3	6	6
<i>Perforation of Intestine</i>												
Total cases.....	1											
District of the Pacific.....												
<i>Obstruction of Intestine</i>		1				1						
Total cases.....	2											
Middle Atlantic District.....						1						
District of the Gulf.....		1										
<i>Hernia</i> *.....	1	1		2	2	6	1	4	2		2	4
Total cases.....	26											
District of New England.....				1	1							
Northern Atlantic District.....						1		1				
Middle Atlantic District.....	1					1						
Southern Atlantic District.....					2		1					
District of the Gulf.....		1			1		1	1	2		1	2
District of the Pacific.....												
District of the Great Lakes.....						2		1				2
District of the Mississippi.....				1							1	
<i>Diarrhœa</i>	76	58	34	43	38	36	32	22	34	41	31	54
Total cases.....	551											
District of New England.....	14	10	4	1	1	4	4		2	3	3	3
Northern Atlantic District.....	7	2	1	3	3	4	3	2	5	5	3	3
Middle Atlantic District.....	5	6	2	3	2	2	6	3	4	10	6	4
Southern Atlantic District.....	1	1		4	1	4	4	5	3	4	1	6
District of the Gulf.....	13	8	5	9	9	11	4	3	6	3	3	4
District of the Pacific.....	2	1	3	5	2	1		1	2			3
District of the Great Lakes.....	7	7	2	1	1	1	1			2	2	4
District of the Ohio.....	11	8	7	5	6	4	5	7	4	7	5	18
District of the Mississippi.....	16	15	10	12	13	5	5	1	8	7	8	9
<i>Colic</i>	1				1					1		
Total cases.....	3											
Northern Atlantic District.....	1											
District of the Gulf.....					1					1		
<i>Constipation</i>	1	2		1				1			1	3
Total cases.....	12											
District of New England.....											1	
Northern Atlantic District.....												
Middle Atlantic District.....	1	1										3
Southern Atlantic District.....				1				1				
District of the Pacific.....		1										
<i>Ulceration of Rectum</i>							1					
Total cases.....	1											
District of the Great Lakes.....							1					
<i>Fistula in Ano</i>	1	4	2	2	1	2	2	3	3	2	1	1
Total cases.....	25											
District of New England.....					1			1	1		1	
Northern Atlantic District.....	1	2						1	1			
Middle Atlantic District.....		1								1		
Southern Atlantic District.....									1			

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
35	45	42	39	34	31	40	28	30	30	36	42	Local Diseases.
2	3	3	2	4	4	5	4	2	1	3	1	<i>Dysentery:</i>
1	2	3		1		3	2	2	2	3	6	Total cases.....254
6	2	2	3	2	1		1	3	3	5	6	District of New England.
2	1	1	2	4	4	3	2	2	2			Northern Atlantic District.
6	8	8	10	6	11	9	3	9	10	6	5	Middle Atlantic District.
1	1	3	2		1	2	2	2	1	1	1	Southern Atlantic District.
3	9	5	7	5	1	1		1	3	2	2	District of the Gulf.
10	18	13	8	6	4	11	14	6	2	5	8	District of the Pacific.
4	1	4	5	6	5	6		3	6	11	13	District of the Great Lakes.
												District of the Ohio.
												District of the Mississippi.
1												<i>Perforation of Intestine:</i>
1												Total cases.....1
												District of the Pacific.
	1	1			1							<i>Obstruction of Intestine:</i>
												Total cases.....2
	1	1			1							Middle Atlantic District.
												District of the Gulf.
2	1	1	2	2	7	5	5	3	1	2	4	<i>Hernia:</i>
			1	1	1							Total cases.....26
					1	1	1	1				District of New England.
1					1	1						Northern Atlantic District.
					2	1	1					Middle Atlantic District.
	1	1		1		1	1	2	1	1	2	Southern Atlantic District.
1												District of the Gulf.
					2	1	2				2	District of the Pacific.
			1							1		District of the Great Lakes.
												District of the Mississippi.
128	103	72	72	71	75	68	55	66	72	70	84	<i>Diarrhœa:</i>
19	17	11	6	1	4	5	4	6	5	5	6	Total cases.....551
10	6	2	5	5	9	7	7	10	12	8	6	District of New England.
13	7	6	5	5	6	9	7	8	11	12	7	Northern Atlantic District.
1	2	1	4	4	6	6	6	7	5	6	8	Middle Atlantic District.
22	17	10	16	16	20	14	11	8	9	7	9	Southern Atlantic District.
3	2	4	6	4	1	1	1	3	2	1	3	District of the Gulf.
11	9	7	2	1	1	2	2	1	3	5	6	District of the Pacific.
21	17	13	11	13	12	9	11	9	12	12	21	District of the Great Lakes.
28	26	18	17	22	16	15	6	14	13	14	18	District of the Ohio.
												District of the Mississippi.
1	1			1	1	1	1		1	1		<i>Colic:</i>
1	1											Total cases.....3
				1	1	1	1		1	1		Northern Atlantic District.
												District of the Gulf.
4	4	2	2				1			1	3	<i>Constipation:</i>
												Total cases.....12
2										1		District of New England.
1	2	1									3	Northern Atlantic District.
							1					Middle Atlantic District.
1	2	1	1									Southern Atlantic District.
												District of the Pacific.
						1	1	1				<i>Ulceration of Rectum:</i>
						1	1	1				Total cases.....1
												District of the Great Lakes.
2	4	5	5	5	6	8	8	9	8	5	2	<i>Fistula in Ano:</i>
				1	1	1	2	3	1	1		Total cases.....25
2	2	2	1	1			1	2	2	1		District of New England.
	1								1	1		Northern Atlantic District.
												Middle Atlantic District.
								1	1			Southern Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Fistula in Ano</i> —Continued.												
District of the Gulf.....			1	1			1					
District of the Pacific.....								1				
District of the Great Lakes.....				1			1					1
District of the Ohio.....			1			1				1		
District of the Mississippi.....		1										
<i>Recto-Abdominal Fistula</i>								1				
Total cases.....								1				
Northern Atlantic District.....												
<i>Hæmorrhoids</i> *.....												
Total cases.....		3	4	4	6	9	2	4	3	2	5	5
District of New England.....		1			1							
Northern Atlantic District.....		1			1		1	1				1
Middle Atlantic District.....					1							
Southern Atlantic District.....						1		1	2			
District of the Gulf.....			1	1	1						2	
District of the Pacific.....			1	1	1	3						
District of the Great Lakes.....			1	1		1	1			2	1	
District of the Ohio.....			1			4		1	1		1	3
District of the Mississippi.....		1		1	1			1			1	1
<i>Fissure of Anus</i>												1
Total cases.....												1
District of New England.....												1
<i>Prolapsus of Rectum</i>					1			1			1	
Total cases.....												
District of the Ohio.....								1				
District of the Mississippi.....					1						1	
<i>Hepatitis</i>	4	4	3	3	3	7	5	3	3	2	4	1
Total cases.....												
District of New England.....	2	1	1	1		3	1				1	
Northern Atlantic District.....				1	1	1	2	1			1	
Middle Atlantic District.....			1							1		
Southern Atlantic District.....									1			
District of the Gulf.....		1			1		1				2	
District of the Pacific.....		1		1	1							
District of the Great Lakes.....	1	1	1									
District of the Ohio.....	1	1				3	1	2	1	1		1
District of the Mississippi.....									1			
<i>Cirrhosis of Liver</i>	1						1					
Total cases.....												
District of New England.....							1					
Northern Atlantic District.....	1											
<i>Lardaceous Liver</i>								1				
Total cases.....												
District of the Pacific.....								1				
<i>Jaundice</i>	2	1	4	2	2	3	3	2	1	1	2	4
Total cases.....												
District of New England.....					1		1	1				1
Northern Atlantic District.....				1			1					
Middle Atlantic District.....			1			1				1		
Southern Atlantic District.....												
District of the Gulf.....			1		1		1					1
District of the Pacific.....				1				1				
District of the Great Lakes.....	1		2						1		1	1
District of the Ohio.....						1						
District of the Mississippi.....	1	1				1					1	1

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
		1	2	2	2	3	2	1	1	1	1	Local Diseases. <i>Fistula in Ano</i> —Continued. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Recto-Abdominal Fistula:</i> Total cases.....1 Northern Atlantic District. <i>Hæmorrhoids:*</i> Total cases.....51 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Fissure of Anus:</i> Total cases.....1 District of New England. <i>Prolapsus of Rectum:</i> Total cases.....4 District of the Ohio. District of the Mississippi. <i>Hepatitis:</i> Total cases.....46 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Cirrhosis of Liver:</i> Total cases.....2 District of New England. Northern Atlantic District. <i>Lardaceous Liver:</i> Total cases.....1 District of the Pacific. <i>Jaundice:</i> Total cases.....31 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi.
		1	1	1	2	3	1	1	1	1	1	
	1	1			1	1						
							1	1	1			
							1	1	1			
4	5	8	10	11	15	9	9	6	4	8	11	
1	1	1	1	1	1							
2	2	1		1	1	1	1	1	1		1	
				1		1	1	2	1	1		
		1	2	2	2					2	2	
		1	2	2	3	2	1	1				
		1	2	1	2	2	2	2	2	3	2	
1	1	2	1		4	3	3	2		1	4	
	1	1	2	3	1		1			1	2	
											1	
											1	
1	1			1	1		1			1	1	
				1	1		1					
8	7	7	7	7	12	14	12	8	5	7	6	
3	2	2	3	2	4	4	2	1		1	1	
1		1	1	1	1	1	3	1		1	1	
1							1	1	1	1		
1	1	1	1	1		1	1			2	2	
1	2	2		2	2	2	1					
1	2	1	1		3	3	4	3	2	2	2	
1								1	1			
1	1					1	1	1	1			
1	1					1	1	1	1			
							1					
6	3	6	4	5	6	6	5	3	1	3	5	
				1	1	2	3	2			1	
1	1	2	1	1	2	2	1					
2		1	1	1	1	1			1	1		
1			1	1			1					
1		2						1		1	2	
1					1	1						
1	2	1			1					1	1	

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.

1873.

1874.

DISEASES.

Local Diseases.

Splentitis:

Total cases..... 5
 District of the Gulf.
 District of the Great Lakes.
 District of the Ohio.

Hypertrophy of Spleen:

Total cases.....12
 Middle Atlantic District.
 District of the Gulf.
 District of the Great Lakes.
 District of the Mississippi.

Peritonitis:

Total cases.....17
 District of New England.
 Northern Atlantic District.
 District of the Gulf.
 District of the Great Lakes.
 District of the Ohio.
 District of the Mississippi.

Ascites:*

Total cases.....11
 District of New England.
 Northern Atlantic District.
 Middle Atlantic District.
 District of the Gulf.
 District of the Pacific.
 District of the Mississippi.

DISEASES OF THE URINARY SYSTEM.

Total cases..... 570

Acute Bright's Disease:

Total cases.....30
 District of New England.
 Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Pacific.
 District of the Great Lakes.
 District of the Ohio.
 District of the Mississippi.

Chronic Bright's Disease:

Total cases.....55
 District of New England.
 Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Gulf.
 District of the Pacific.
 District of the Great Lakes.

Pyelitis:

Total cases.....2
 District of New England.
 Southern Atlantic District.

Hydronephrosis:

Total cases.....1
 Southern Atlantic District.

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
5	7	8	6	6	9	11	11	14	16	10	5	Local Diseases.
1	2	3	1	1	2	3	2	3	5	2	.....	<i>Cystitis:</i>
3	5	3	2	2	4	2	2	2	3	1	.....	Total cases.....49
1	District of New England.
.....	Northern Atlantic District.
.....	Middle Atlantic District.
.....	Southern Atlantic District.
.....	District of the Gulf.
.....	District of the Pacific.
.....	District of the Great Lakes.
.....	District of the Ohio.
.....	<i>Recto-Vesical Fistula:</i>
.....	Total cases.....1
.....	Northern Atlantic District.
2	1	.....	1	1	1	2	2	2	3	3	2	<i>Vesical Calculus:*</i>
.....	Total cases.....9
.....	Northern Atlantic District.
.....	Middle Atlantic District.
1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Atlantic District.
.....	District of the Gulf.
1	District of the Pacific.
.....	District of the Great Lakes.
.....	<i>Hæmaturia:</i>
.....	Total cases.....8
.....	District of New England.
.....	Northern Atlantic District.
.....	Middle Atlantic District.
.....	Southern Atlantic District.
.....	District of the Gulf.
.....	<i>Paralysis of the Bladder:</i>
.....	Total cases.....1
.....	District of the Great Lakes.
.....	<i>Incontinence of Urine:</i>
.....	Total cases.....5
.....	District of New England.
.....	Southern Atlantic District.
.....	District of the Pacific.
.....	District of the Ohio.
2	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	<i>Retention of Urine:</i>
.....	Total cases.....4
1	Middle Atlantic District.
1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Pacific.
.....	District of the Great Lakes.
.....	<i>Inflammation of Prostate:</i>
.....	Total cases.....6
.....	District of New England.
.....	Northern Atlantic District.
.....	Southern Atlantic District.
.....	District of the Pacific.
.....	District of the Ohio.
6	9	7	13	19	28	19	22	16	23	30	32	<i>Gonorrhœa:</i>
.....	Total cases.....131
4	7	6	5	8	14	11	8	7	5	6	8	District of New England.
.....	Northern Atlantic District.
.....	Middle Atlantic District.
.....	Southern Atlantic District.
.....	District of the Gulf.
.....	District of the Pacific.
.....	District of the Great Lakes.

	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
DISEASES.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Gonorrhœa</i> —Continued.												
District of the Ohio							1		1			
District of the Mississippi								2	1	2	3	1
<i>Balanitis</i>				1		1		1			1	1
Total cases.....												
Middle Atlantic District				1		1						
District of the Pacific								1			1	1
<i>Phimosis</i>	2	2	1				6	5	5	2	2	1
Total cases.....												
District of New England	1						1					
Northern Atlantic District									1	1		
Middle Atlantic District	1	1	1							1		
Southern Atlantic District								1				
District of the Gulf		1										
District of the Pacific								1			1	
District of the Great Lakes												1
District of the Ohio							5	3	4		1	
<i>Paraphimosis</i>			1						2		2	1
Total cases.....												
Northern Atlantic District			1									
Middle Atlantic District											1	1
District of the Ohio									2		1	
<i>Bubo</i>	1	1	4	5	4	6	4	7	1	4	7	9
Total cases.....												
District of New England							1					
Northern Atlantic District			1				1				1	3
Middle Atlantic District		1	3		2	6	1	5		1	6	3
Southern Atlantic District								1	1	1		1
District of the Gulf	1			2	1		1					2
District of the Great Lakes				3	1					2		
District of the Mississippi								1				
<i>Condyloma</i>									1			
Total cases.....												
District of New England									1			
<i>Gleet</i>					1			3	1		2	
Total cases.....												
Middle Atlantic District									1		2	
District of the Gulf								3				
District of the Great Lakes					1							
<i>Urethritis</i>		2	1	2	1	1	1	1	3	2	1	1
Total cases.....												
District of New England						1	1		1	1		
Middle Atlantic District		2										
District of the Pacific			1	2	1			1	2	1	1	1
<i>Stricture of the Urethra.*</i>	11	10	11	9	8	14	18	13	12	8	13	5
Total cases.....												
District of New England	7	3	7	1	1	1	1	3		2	3	
Northern Atlantic District	2	2	1	1	2		4	4	4	2	2	1
Middle Atlantic District		1			2	3	2		1	1	2	
Southern Atlantic District	1			1			2				3	
District of the Gulf		3		3	1	6	3	3	3	2	1	
District of the Pacific			3	1	1		1	2	2		3	3
District of the Great Lakes	1	1				2	2		1			
District of the Ohio				2	1	2	3	1	1	1		1
<i>Urinary Fistula</i>						1			1	1	2	
Total cases.....												
District of New England									1		1	
Middle Atlantic District												

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
1	1					1	2	1	1	1	2	Local Diseases.
			1	1	1		1	1		1	2	<i>Gonorrhœa</i> —Continued.
												District of the Ohio.
												District of the Mississippi.
												<i>Balanitis:</i>
												Total cases.....5
			1	1	1							Middle Atlantic District.
							1	1		1	2	District of the Pacific.
2	3	3				6	6	8	6	4	3	<i>Phimosis:</i>
1						1	1	1				Total cases.....26
1	2	3						1	2	1		District of New England.
	1							1	1	1		Northern Atlantic District.
								1				Middle Atlantic District.
								1	1			Southern Atlantic District.
								1	1		1	District of the Gulf.
										1	1	District of the Pacific.
						5	3	4	3	1	1	District of the Great Lakes.
												District of the Ohio.
		1						2	1	2	2	<i>Paraphimosis:</i>
		1										Total cases.....6
										1	2	Northern Atlantic District.
								2	1	1		Middle Atlantic District.
												District of the Ohio.
5	5	7	8	8	10	9	11	4	7	12	9	<i>Bubo:</i>
						1						Total cases.....57
		1	1			1	1			1	3	District of New England.
	1	3	1	2	7	4	7	2	2	8	3	Northern Atlantic District.
1							1	1	2	2	1	Middle Atlantic District.
1	1	1	2	3	1	1	1				2	Southern Atlantic District.
1	1	1	4	3	2	2			2	1		District of the Gulf.
2	2	1					1	1	1			District of the Great Lakes.
												District of the Mississippi.
								1				<i>Condyloma:</i>
								1				Total cases.....1
												District of New England.
				1			3	1	1	2		<i>Gleet:</i>
												Total cases.....7
							3					Middle Atlantic District.
				1								District of the Gulf.
												District of the Great Lakes.
	2	3	2	2	1	1	1	4	3	2	3	<i>Urethritis:</i>
												Total cases.....16
						1	1		1			District of New England.
	2	2						1	1			Middle Atlantic District.
		1	2	2			1	3	2	2	3	District of the Pacific.
22	20	21	16	16	25	33	34	32	24	30	16	<i>Stricture of the Urethra:*</i>
												Total cases.....143
10	9	11	4	4	3	3	6	5	3	5	3	District of New England.
5	4	2	1	2	2	6	8	6	5	6	3	Northern Atlantic District.
	1	1		2	4	5	3	2	3	5	1	Middle Atlantic District.
1	1		1			2				3	1	Southern Atlantic District.
1	3	2	3	3	9	8	8	10	8	6	1	District of the Gulf.
4	1	4	5	3	3	3	4	4	2	4	6	District of the Pacific.
1	1	1			2	2	2	3	1			District of the Great Lakes.
			2	2	2	4	3	2	2	1	1	District of the Ohio.
2					1	1	1	2	3	4	2	<i>Urinary Fistula:</i>
												Total cases.....7
1								1	1	2	1	District of New England.
												Middle Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Urinary Fistula</i> —Continued.												
District of the Pacific						1				1		
District of the Great Lakes											1	
District of the Ohio												
DISEASES OF THE MALE ORGANS } OF GENERATION.....	19	27	20	20	21	21	24	20	17	14	28	24
Total cases.....	268											
<i>Hydrocele</i>	1	3	1	1	2	4	5	5	1	1	2	3
Total cases.....	29											
District of New England		2									1	1
Northern Atlantic District	1						1	1	1			
Middle Atlantic District				1	1	3		3				
Southern Atlantic District											1	
District of the Gulf		1	1				1	1				1
District of the Pacific						1				1		
District of the Great Lakes					1		3					1
<i>Variocoele</i>					1							
Total cases.....	1											
District of the Pacific					1							
<i>Orchitis</i>	17	20	16	18	16	15	17	10	12	10	19	18
Total cases.....	200											
District of New England	4	2	2	2			1		1		1	3
Northern Atlantic District	1	6	3	6	6	4	4	3	1	3	5	2
Middle Atlantic District	2	2	5	1	2	2	3	5		2	5	3
Southern Atlantic District	1				1	2			2	1	2	
District of the Gulf	1	2			1	2	3	1	2	1	1	2
District of the Pacific	5	2		2	2	3	3	1	1			2
District of the Great Lakes	1	4	4	5	3		2		4	1	4	4
District of the Ohio	1		1	1	1	1	1			2		2
District of the Mississippi	1	2	1	1		1			1		1	
<i>Epididymitis</i>	1	2	1		2	2	2	2	3	3	6	1
Total cases.....	26											
District of New England					1	1	1	1	2	1	1	1
Northern Atlantic District											2	
Middle Atlantic District						1						
District of the Pacific								1				
District of the Great Lakes	1	2	1							1	2	
District of the Ohio					1		1		1	1	1	
<i>Protrusion of Tubuli Seminales</i>			1									
Total cases.....	1											
District of the Ohio			1									
<i>Spermatorrhœa</i>		2	1	1				3	1		1	2
Total cases.....	11											
District of New England		1	1						1			2
Middle Atlantic District								1			1	
District of the Ohio				1				2				
District of the Mississippi		1										
DISEASES OF THE ORGANS OF LOCO- } MOTION.....	8	8	7	6	10	13	10	13	6	10	9	7
Total cases.....	120											
<i>Ostitis</i>		1		1						2		
Total cases.....	4											
District of the Gulf										1		
District of the Pacific		1		1						1		

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Periostitis</i>	2	2	3	1	5	2	2	.....	2	2	3	2
Total cases.....	26											
District of New England.....	1	.....	1	.....	1	.....	1	.....	1	.....	
Northern Atlantic District.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....		1
Southern Atlantic District.....	.....	.....	.....	.....	1	1	.....	.....	.....	2	.....
District of the Gulf.....	.....	1	1	.....	1	1	1	.....	1	.....	
District of the Pacific.....	1	1	.....	1	2	.....	.....	.....	.....	.....	2	1
District of the Great Lakes.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
District of the Ohio.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Caries*</i>	1	.....	1	.....	1	3	3	1	.....	3	1	2
Total cases.....	19											
District of New England.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	1	2
Northern Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Middle Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....
District of the Gulf.....	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....
District of the Great Lakes.....	1	.....	.....	.....	1	1	1	.....	.....	.....	.....	.....
<i>Necrosis*</i>	2	1	1	2	2	3	2	6	2	1	3	2
Total cases.....	30											
District of New England.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Northern Atlantic District.....	.....	.....	.....	.....	1	.....	1	2	.....	1	2	2
Middle Atlantic District.....	.....	.....	1	.....	.....	.....	.....	1	1	.....	.....	.....
District of the Gulf.....	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....
District of the Pacific.....	.....	.....	.....	1	.....	1	.....	2	1	.....	.....	.....
District of the Great Lakes.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
District of the Ohio.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....
<i>Synovitis*</i>	3	3	1	1	2	4	3	5	2	2	2	1
Total cases.....	34											
District of New England.....	.....	1	.....	.....	1	2	1	1	.....	1	.....	.....
Northern Atlantic District.....	.....	.....	1	.....	1	.....	.....	.....	.....	1	2	.....
Middle Atlantic District.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Southern Atlantic District.....	.....	.....	.....	.....	.....	.....	1	.....	2	.....	.....	.....
District of the Gulf.....	.....	1	.....	.....	.....	2	1	2	.....	.....	.....	.....
District of the Pacific.....	2	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
District of the Great Lakes.....	1	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....
District of the Ohio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Psoas Abscess</i>.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....
Total cases.....	4											
District of the Great Lakes.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
District of the Ohio.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
<i>Disease of Spine, (not specified)*</i>	1	.....	.....	.....	.....	.....	.....	.....	.....
Total cases.....	1											
District of New England.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
<i>Progressive Muscular Atrophy</i>.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Total cases.....	1											
District of the Pacific.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
<i>Bunion</i>.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total cases.....	1											
District of the Pacific.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
DISEASES OF THE CELLULAR TIS- } SUE AND CUTANEOUS SYSTEM. } Total cases.....	54	58	72	61	84	77	101	59	48	69	68	73
872												
<i>Inflammation of Cellular Tissue</i>.....	.....	.....	.....	.....	.....	1	2	1	1	.....	.....	2
Total cases.....	7											
Northern Atlantic District.....	.....	.....	.....	.....	.....	1	1	1	1	.....	.....	.....
District of the Pacific.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	2

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
2	4	4	1	5	4	4	1	2	4	3	3	Local Diseases. <i>Periostitis:</i> Total cases.....26 District of New England. Northern Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio.
1	1	1				1	1	1	1			
				1	1							
				1	1	1					1	
	1	2			2	2		1	1			
1	2		1	2						2	2	
		1								1		
4	3	3	3	3	6	7	6	5	5	2	3	
1	1	1	1	1	1	1	1	1	1	1	2	
							1	1	1			
1	1	1					1	1	3	1	1	
2	1	1	1	1	2	3	3	2				
5	4	3	4	4	7	7	10	9	6	8	6	<i>Necrosis:*</i> Total cases.....30 District of New England. Northern Atlantic District. Middle Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio.
2	1									1	1	
1		1		1	1	2	3	1	2	4	3	
1	1				2	3	3	3	2	2	1	
1	1	1	2	1	2	1	2	2	1	1	1	
	1	1	1	1	1	1	1	1				
			1	1	1							
8	8	6	5	5	8	7	11	6	5	5	2	
1	2	2	1	2	3	3	3	1	1	1		
		1	1	2	2	1	1		1	3	1	
	1	1									1	
1	1				2	1	1	2	1			
2	2	1	1			3	2	1	1			
3	2	1	2	1	1	1	2	1	1			
1												
2	1	1			1							<i>Psoas Abscess:</i> Total cases.....4 District of the Great Lakes. District of the Ohio.
1	1	1										
1					1							
				1								<i>Disease of Spine, (not specified:)*</i> Total cases.....1 District of New England.
			1	1								
							1	1				<i>Progressive Muscular Atrophy:*</i> Total cases.....1 District of the Pacific.
							1	1				
	1											<i>Bunion:</i> Total cases.....1 District of the Pacific.
	1											
102	109	126	128	156	180	207	185	146	134	144	147	{ DISEASES OF THE CELLULAR TIS- SUE AND CUTANEOUS SYSTEM. Total cases.....872
					1		2	2	1		2	
					1	1	1	2	1			
						1	1				2	<i>Inflammation of Cellular Tissue:</i> Total cases.....7 Northern Atlantic District. District of the Pacific.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Abscess of Cellular Tissue*</i>	14	18	20	17	24	18	28	15	18	21	23	27
Total cases.....	261											
District of New England.....	4	5	3	4	7	5	6	1	5	5	5	6
Northern Atlantic District.....	3	3	4	4	3	1	1	1	4	1	5	5
Middle Atlantic District.....	2	2	5	3	3	2	4	1	1	5	2	4
Southern Atlantic District.....	.....	1	1	.....	1	3	6	3	.....	2	1	1
District of the Gulf.....	2	1	1	1	4	1	2	3	2	2	2	1
District of the Pacific.....	.....	.....	2	3	.....	1	3	4	4	5	3	3
District of the Great Lakes.....	1	2	4	1	1	.....	.....	.....	.....	.....	3	6
District of the Ohio.....	2	3	.....	1	4	2	4	.....	2	1	2	.....
District of the Mississippi.....	.....	1	.....	.....	1	3	2	2	.....	.....	.....	1
<i>Prurigo</i>.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....
Total cases.....	2											
Middle Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
District of the Pacific.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
<i>Lichen*</i>	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Total cases.....	2											
District of New England.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
District of the Great Lakes.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Pityriasis</i>.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total cases.....	1											
District of the Ohio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Psoriasis*</i>	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Total cases.....	3											
District of New England.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northern Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
District of the Ohio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
<i>Herpes*</i>	2	.....	1	.....	.....	.....	2
Total cases.....	6											
District of New England.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Middle Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
District of the Gulf.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
District of the Great Lakes.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
District of the Ohio.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
<i>Eczema*</i>	1	2	2	4	4	2	1	3	1	5	1	3
Total cases.....	29											
District of New England.....	.....	1	.....	.....	1	2	.....	1	.....	.....	.....	.....
Middle Atlantic District.....	1	1	1	1	2	.....	1	1	.....	1	.....	.....
Southern Atlantic District.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
District of the Great Lakes.....	.....	.....	1	2	1	.....	.....	.....	.....	.....	1	1
District of the Ohio.....	.....	.....	.....	.....	.....	.....	.....	.....	1	4	.....	.....
District of the Mississippi.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
<i>Impetigo*</i>	1	.....	.....	.....	.....	.....	.....
Total cases.....	1											
Southern Atlantic District.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
<i>Rupia*</i>	3	.....	.....	.....	2	.....
Total cases.....	5											
Middle Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Southern Atlantic District.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
District of the Great Lakes.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	1	.....
District of the Ohio.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
<i>Ecthyma</i>.....	.....	.....	.....	1	.....	1	.....	.....	1	.....	.....	1
Total cases.....	4											
District of the Pacific.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
District of the Great Lakes.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
District of the Ohio.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....

V.—*Tabular Statement, by Months and Districts, of Diseases and*

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Sycosis</i>				1					1	1		
Total cases.....												
Northern Atlantic District.....									1	1		
District of the Pacific.....				1								
<i>Frostbite</i>			1		2	5	16	9	3	5	3	
Total cases.....												
District of New England.....			1		1	4	6	4	2	4		
Northern Atlantic District.....					1		4		1		1	
Middle Atlantic District.....							1	3		1		
Southern Atlantic District.....							2					
District of the Pacific.....								1				
District of the Great Lakes.....						1	1	1			2	
District of the Ohio.....							2					
<i>Ulcer*</i>	34	29	37	30	39	32	33	18	14	26	24	30
Total cases.....												
District of New England.....	7	4	8	3	3	3	2	1	1	3	2	2
Northern Atlantic District.....	5	2	2	3	4	5	3	1	1	4	1	2
Middle Atlantic District.....	7	7	4	8	10	7	8	7		4	6	6
Southern Atlantic District.....						4	6	1	4			4
District of the Gulf.....	4	5	7	6	7	4	6	3	3	5	5	3
District of the Pacific.....		2	3	4	4	1	1	2		3		6
District of the Great Lakes.....	5	4	5	2	8	4	3	1	1	2	5	5
District of the Ohio.....	1	3	4	3	4	3	3	1	3	3	3	1
District of the Mississippi.....	5	2	4	1	3	1	1	1	1	2	2	1
<i>Boil</i>		1	2		1	2	1				3	
Total cases.....												
District of New England.....			1			2						
Middle Atlantic District.....			1								1	
Southern Atlantic District.....											1	
District of the Gulf.....					1							
District of the Great Lakes.....											1	
District of the Ohio.....		1					1					
District of the Mississippi.....												
<i>Carbuncle</i>				1	3	2	3	3	1			
Total cases.....												
District of New England.....					1							
Northern Atlantic District.....				1		2	1		1			
Middle Atlantic District.....					1		1	1				
Southern Atlantic District.....					1		1	2				
<i>Onychia</i>								1				
Total cases.....												
Middle Atlantic District.....								1				
<i>Whitlow</i>	3	6	10	6	8	10	11	6	6	9	9	7
Total cases.....												
District of New England.....			1	1		3	3			3	1	
Northern Atlantic District.....	1		1	1	1	3	1	2	2	3	4	4
Middle Atlantic District.....		1	2	1		1		1				
Southern Atlantic District.....			1	1	2	2	3		1	1	1	
District of the Gulf.....	1	1	1		2		3	3				1
District of the Pacific.....		2								1		
District of the Great Lakes.....		2	3	1	3	1			1		2	1
District of the Ohio.....	1		1	1			1			1	1	1
<i>Senile Gangrene</i>					1		1					
Total cases.....												
Northern Atlantic District.....					1							
Southern Atlantic District.....							1					
<i>Molluscum</i>							1					
Total cases.....												
Southern Atlantic District.....							1					

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
			1					1	2	2	1	Local Diseases.
								1	2	2	1	
			1									<i>Sycosis:</i>
												Total cases.....3
												Northern Atlantic District.
												District of the Pacific.
4	3	2	2	3	8	22	22	16	11	6	4	<i>Frostbite:</i>
1	1	1	1	1	5	9	10	6	6	2	1	Total cases.....48
2	1	1	1	2	2	6	1	2	1	1		District of New England.
						1	4	4	2			Northern Atlantic District.
						2	2	2	1			Middle Atlantic District.
							1	1	1	1	1	Southern Atlantic District.
1	1				1	2	2			2	2	District of the Pacific.
						2	2	1				District of the Great Lakes.
							2	1				District of the Ohio.
52	55	66	70	80	91	95	81	60	50	57	61	<i>Ulcér: *</i>
7	7	13	10	9	6	4	5	4	4	4	4	Total cases.....364
7	5	5	5	5	9	8	6	3	6	3	3	District of New England.
9	13	8	14	18	15	17	17	11	9	12	14	Northern Atlantic District.
					4	8	7	7	2	2	5	Middle Atlantic District.
10	11	14	19	16	20	18	14	10	11	13	11	Southern Atlantic District.
3	3	6	7	8	7	7	5	5	3	3	7	District of the Gulf.
7	7	8	5	11	14	14	10	8	2	7	9	District of the Pacific.
2	4	7	7	8	11	13	11	9	7	9	5	District of the Great Lakes.
7	5	5	3	5	5	6	4	3	4	4	3	District of the Ohio.
												District of the Mississippi.
1	1	3	1	1	2	2				3	1	<i>Boil:</i>
												Total cases.....11
		1	1		2	1						District of New England.
		1								1	1	Middle Atlantic District.
										1		Southern Atlantic District.
			1									District of the Gulf.
										1		District of the Great Lakes.
1	1	1				1						District of the Ohio.
												District of the Mississippi.
1												<i>Carbuncle:</i>
			1	3	2	3	5	3	1			Total cases.....14
				1								District of New England.
1			1		2	1		1				Northern Atlantic District.
				1		1	2	1	1			Middle Atlantic District.
				1		1	3	1				Southern Atlantic District.
								1	1			<i>Onychia:</i>
								1	1			Total cases.....1
												Middle Atlantic District.
6	9	15	14	13	17	17	15	12	12	17	16	<i>Whitlow:</i>
1		1	2	1	3	6	3		3	3	2	Total cases.....94
1		1	2	1	4	3	4	5	3	7	7	District of New England.
	1	2	2		1		1	2	2			Northern Atlantic District.
		1	2	4	4	4	1	1	2	2	1	Middle Atlantic District.
2	3	2	1	2	1	3	5	3			1	Southern Atlantic District.
1	2	2							1	1		District of the Gulf.
	2	5	4	4	4			1		2	2	District of the Pacific.
1	1	1	1	1		1	1		1	2	3	District of the Great Lakes.
												District of the Ohio.
				1	1	1	1	1				<i>Senile Gangrene:</i>
												Total cases.....2
				1	1							Northern Atlantic District.
						1	1	1				Southern Atlantic District.
						1						<i>Molluscum:</i>
						1						Total cases.....1
												Southern Atlantic District.

	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
DISEASES.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
Cheloid.....							1					
Total cases.....	1											
Middle Atlantic District.....							1					
Tinea Tonsurans.....										1		
Total cases.....	1									1		
District of the Great Lakes.....										1		
Scabies.....						1				1		
Total cases.....	2									1		
District of New England.....										1		
Northern Atlantic District.....						1						
Not specified*.....		2		1	2			2			1	
Total cases.....	9											
District of New England.....					1							
District of the Pacific.....		2			1			2			1	
District of the Great Lakes.....				1								
DEBILITY*.....	9	6	6	4	6	5	5	5	5	2	4	1
Total cases.....	65											
District of New England.....	2	1			1	1			1			
Northern Atlantic District.....					1						1	
Middle Atlantic District.....	1	1					1				1	
Southern Atlantic District.....				1		1						1
District of the Gulf.....		1	3		1	1		1	2	1	1	
District of the Great Lakes.....	4	1	2	1	1		2	2			1	
District of the Ohio.....	2	2	1	1	2	2	2	2	2	1		1
District of the Mississippi.....				1								
POISONS.....	8	11	5	5	4	4	4	9	4	8	9	11
Total cases.....	86											
Mercury.....	1											
Total cases.....	1											
District of the Pacific.....	1											
Lead, (Colic).....		2								1		
Total cases.....	3											
District of New England.....												
Middle Atlantic District.....		1								1		
District of the Gulf.....		1										
Alcohol.....	2	5	2	2	2	1	1	5	1	2		3
Total cases.....	23											
District of New England.....								1	1			1
Northern Atlantic District.....	2	1	1			1				1		
Middle Atlantic District.....		1		2	2			2				1
District of the Gulf.....		1					1			1		
District of the Pacific.....												1
District of the Ohio.....		2	1					2				
Delirium Tremens.....	5	2	3	2	2	3	3	2	3	5	7	6
Total cases.....	44											
District of New England.....					1	1					1	
Northern Atlantic District.....				1						1	2	1
Middle Atlantic District.....	1	1		1					1	2		1
Southern Atlantic District.....					1				1			
District of the Gulf.....	3		1				2	2	1		3	1
District of the Great Lakes.....			1			2	1			2	1	
District of the Ohio.....		1	1									3
District of the Mississippi.....	1											
Rhus Toxicodendron.....												1
Total cases.....	1											
Northern Atlantic District.....												1

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
						1						Local Diseases.
						1						<i>Cheloid:</i>
												Total cases.....1
												Middle Atlantic District.
									1	1		<i>Tinea Tonsurans:</i>
									1	1		Total cases.....1
												District of the Great Lakes.
					1				1	1	1	<i>Scabies:</i>
					1				1	1	1	Total cases.....2
												District of New England.
												Northern Atlantic District.
1	3	1	1	2			2			1		<i>Not specified:*</i>
				1								Total cases.....9
1	3	1		1			2			1		District of New England.
			1									District of the Pacific.
												District of the Great Lakes.
16	13	9	8	10	10	7	10	10	5	8	2	DEBILITY:*
3	4			1	2			1	1	1		Total cases.....65
2	1			1	1					1		District of New England.
						1						Northern Atlantic District.
2	3	4	2	1	1	1	1	3	2	2	1	Middle Atlantic District.
4	3	4	2	3	1	2	4	2		1		Southern Atlantic District.
4	2	1	2	3	4	2	3	4	2	2		District of the Gulf.
1			1									District of the Great Lakes.
												District of the Ohio.
12	16	10	8	5	7	8	14	9	9	12	16	District of the Mississippi.
1	1											POISONS:
1	1											Total cases.....86
												<i>Mercury:</i>
												Total cases.....1
												District of the Pacific.
	2	1	1						1			<i>Lead, (Colic:)</i>
												Total cases.....3
									1			District of New England.
	1											Middle Atlantic District.
	1	1	1									District of the Gulf.
4	7	4	3	3	3	3	7	4	3	3	3	<i>Alcohol:</i>
1												Total cases.....28
2	3	2			1		1	1	1	1	1	District of New England.
	1				2	2	3	3	1	1	1	Northern Atlantic District.
	1		2	3	2	1	1		1	1		Middle Atlantic District.
1	2	2	1				2				1	District of the Gulf.
												District of the Pacific.
6	4	4	3	2	4	5	5	4	5	7	10	District of the Ohio.
				1	2					1		<i>Delirium Tremens:</i>
												Total cases.....44
1	2	1	1						1	2	2	District of New England.
									1	2	1	Northern Atlantic District.
3	1	1		1				1				Middle Atlantic District.
1	1	1	1		2	3	3	2	2	1	4	Southern Atlantic District.
												District of the Gulf.
1	1	1							2	1		District of the Great Lakes.
												District of the Ohio.
												District of the Mississippi.
												<i>Rhus Toxicodendron:</i>
												Total cases.....1
												Northern Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES AND INJURIES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Not specified</i>		2		1				2			2	1
Total cases.....												
Northern Atlantic District.....				1								
District of the Gulf.....		1						1				
District of the Pacific.....											1	
District of the Great Lakes.....											1	
District of the Ohio.....		1						1				
District of the Mississippi.....												1
Human Parasites.												
<i>Tænia Solium</i>				1			1	1	1		1	
Total cases.....												
Northern Atlantic District.....							1		1			
Middle Atlantic District.....											1	
District of the Gulf.....												
District of the Great Lakes.....				1				1				
Injuries.												
<i>Burns and Scalds</i>	4	2	3	4	4	13		1	4	3	3	8
Total cases.....												
District of New England.....			2						1		1	
Northern Atlantic District.....					1							
Middle Atlantic District.....	1							1		1		
Southern Atlantic District.....						2			1			1
District of the Gulf.....		1		3		8						2
District of the Pacific.....			1		1				1			1
District of the Great Lakes.....	2			1	1	2					2	3
District of the Ohio.....	1	1				1			1	2		
District of the Mississippi.....					1							1
<i>Lightning Stroke</i>	1											
Total cases.....												
District of New England.....	1											
<i>Concussion of the Brain</i>	1	1	2	3		2		2			1	1
Total cases.....												
District of New England.....	1	1						1			1	1
Middle Atlantic District.....				1								
Southern Atlantic District.....						1						
District of the Gulf.....						1						
District of the Pacific.....			1									
District of the Great Lakes.....			1	2								
District of the Ohio.....								1				
<i>Contusions</i> *.....	53	50	60	39	83	67	51	57	54	44	61	64
Total cases.....												
District of New England.....	3	2	4	5	5	5	3	6	5	2	7	8
Northern Atlantic District.....	4		2	3	3	7	4	3	10	3	6	12
Middle Atlantic District.....	4	4	2	5	6	8	5	8	2	9	5	4
Southern Atlantic District.....		2	3	1	6	4	5	1	4	3	1	3
District of the Gulf.....	3	4	5	3	8	11	14	10	4	6	14	5
District of the Pacific.....	4	4	2	1	8	3		6	3	7	7	5
District of the Great Lakes.....	20	24	25	11	27	5	4	3	3	3	14	15
District of the Ohio.....	8	5	8	5	10	21	14	16	15	8	6	9
District of the Mississippi.....	7	5	9	5	10	3	2	4	8	3	1	3
<i>Sprains</i> *.....	15	6	9	7	7	18	12	10	9	12	15	11
Total cases.....												
District of New England.....	2	1	1			3	1	2	2	1	1	1
Northern Atlantic District.....		1	1	3			3					2
Middle Atlantic District.....			1		2	2	1	1	2		1	2
Southern Atlantic District.....	1				1	2				1	1	
District of the Gulf.....		1	1	1		6	1	3		3	2	

V.—Tabular Statement, by Months and Districts, of Diseases and

INJURIES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Injuries.												
<i>Sprains*—Continued.</i>												
District of the Pacific.....	3	.....	1	.....	1	3	4	1	3	1	.....	1
District of the Great Lakes.....	7	2	2	1	2	1	1	1	3	1	.....	2
District of the Ohio.....	1	1	1	1	1	1	1	3	2	6	2	2
District of the Mississippi.....	1	.....	1	1	.....	1	.....	.....	.....	.....	1	1
<i>Incised Wounds*</i>	5	10	8	8	4	9	10	6	10	8	10	15
Total cases.....	108											
District of New England.....	1	1	.....	1	.....	.....	1	.....	1	1	3	.....
Northern Atlantic District.....	1	1	.....	2	.....	.....	.....	.....	1	1	.....	.....
Middle Atlantic District.....	2	1	1	.....	.....	.....	1	1	.....	.....	.....	1
Southern Atlantic District.....	1	1	2	1	1	3	2	.....	1	1	1	2
District of the Gulf.....	1	.....	1	.....	.....	3	4	2	2	1	2	1
District of the Pacific.....	.....	.....	1	.....	.....	.....	1	.....	1	.....	1	1
District of the Great Lakes.....	.....	1	.....	1	1	.....	.....	.....	.....	.....	.....	1
District of the Ohio.....	.....	2	1	1	2	2	1	3	3	3	.....	4
District of the Mississippi.....	1	3	2	2	.....	1	.....	.....	2	1	3	5
<i>Punctured Wounds*</i>	1	1	.....	1	1	2	1	2	2	3	2	3
Total cases.....	19											
District of New England.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
Northern Atlantic District.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	2
Southern Atlantic District.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	1	.....
District of the Gulf.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	1
District of the Great Lakes.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	1
District of the Ohio.....	.....	.....	.....	.....	1	.....	.....	2	1	3	.....	.....
<i>Lacerated Wounds*</i>	11	11	10	7	6	9	3	10	9	11	7	6
Total cases.....	104											
District of New England.....	1	1	.....	2	.....	.....	.....	.....	1	.....	.....	.....
Northern Atlantic District.....	2	2	3	2	2	.....	.....	1	2	.....	.....	.....
Middle Atlantic District.....	2	1	.....	2	2	3	1	2	1	3	3	1
Southern Atlantic District.....	.....	1	1	.....	.....	.....	.....	.....	1	2	.....	.....
District of the Gulf.....	.....	1	2	.....	1	1	1	2	.....	.....	1	2
District of the Pacific.....	.....	2	.....	.....	.....	2	.....	1	2	1	.....	1
District of the Great Lakes.....	3	.....	2	.....	.....	.....	.....	.....	1	1	2	2
District of the Ohio.....	.....	1	1	.....	1	2	1	1	1	2	.....	.....
District of the Mississippi.....	3	2	1	1	.....	1	.....	3	.....	2	1	.....
<i>Gunshot Wounds*</i>	1	1	1	2	1	.....	1	4	.....	3	3	2
Total cases.....	20											
District of New England.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Northern Atlantic District.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Middle Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....
Southern Atlantic District.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....
District of the Gulf.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....
District of the Pacific.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
District of the Great Lakes.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	1	.....
District of the Ohio.....	.....	.....	.....	1	.....	.....	.....	1	.....	2	1	1
District of the Mississippi.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Fractures*</i>	25	15	25	20	17	21	14	25	9	15	18	22
Total cases.....	271											
District of New England.....	5	.....	1	3	2	4	2	2	2	.....	1	.....
Northern Atlantic District.....	6	5	3	.....	7	5	1	4	1	3	1	7
Middle Atlantic District.....	3	2	5	3	2	1	1	2	1	3	3	1
Southern Atlantic District.....	3	.....	.....	2	1	2	3	1	.....	.....	3	3
District of the Gulf.....	1	.....	5	1	2	4	2	7	3	2	1	3
District of the Pacific.....	1	.....	2	1	1	.....	1	3	1	2	.....	1
District of the Great Lakes.....	3	5	5	8	2	1	2	3	.....	4	7	5
District of the Ohio.....	1	2	2	.....	.....	2	1	1	1	1	1	2
District of the Mississippi.....	2	1	2	2	.....	2	1	2	.....	.....	1	.....

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												INJURIES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
5 8 1 2	2 7 1 1	3 5 1 1	1 1 1 1	1 3 1 1	4 2 1 1	7 3 1 1	5 2 1 4	6 1 3	3 1 8	1 7 6 1	1 8 6 1	Injuries. <i>Sprains*</i> —Continued. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi.
10 1 4 2	17 2 5 1	18 1 4 2	15 1 2 3	11 1 2 2	12 1 1 3	17 1 1 7	12 1 1 2	19 2 1 4	16 2 1 1	19 4 1 6	20 1 1 2	<i>Incised Wounds.*</i> Total cases.....108 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi.
1 4 2	2 5 1	1 4 2	1 2 3	1 1 2	3 1 1	3 1 1	2 1 1	2 6 1	2 4 1	4 6 1	1 2 1	<i>Punctured Wounds.*</i> Total cases.....19 District of New England. Northern Atlantic District. Southern Atlantic District. District of the Gulf. District of the Great Lakes. District of the Ohio.
1 1	1 1	1 1	1 1	1 1	3 1	3 1	2 1	2 1	4 3	4 2	5 2	<i>Lacerated Wounds.*</i> Total cases.....104 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi.
15 2 3 3	20 2 3 1	16 5 3 1	16 2 2 1	11 3 2 1	15 3 4 2	12 4 4 2	19 1 6 3	21 3 4 1	23 2 4 1	16 5 2 1	16 4 3 2	<i>Gunshot Wounds.*</i> Total cases.....20 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi.
2 3 3	3 2 3	4 5 3	3 2 1	3 2 1	3 3 1	3 6 1	6 6 1	5 6 2	7 5 1	7 1 1	7 2 1	<i>Fractures.*</i> Total cases.....271 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi.
1 1	2 1	2 1	1 1	1 1	1 1	1 1	1 2	1 2	1 1	2 3	2 4	
70 10 12 10 6 2 8 15 4 3	52 4 14 6 3 2 6 12 4 3	61 4 13 10 1 5 8 11 4 5	58 5 9 7 2 5 6 17 4 4	53 6 11 7 3 6 3 12 1 4	56 9 12 5 5 7 2 8 1 5	48 6 7 6 5 6 2 7 4 5	60 6 11 7 6 9 4 3 6	55 8 9 7 6 6 12 4 2 3	46 4 7 6 3 11 6 5 3	43 3 7 5 4 7 4 11 3 2	50 1 4 7 8 2 16 4 1	

V.—*Tabular Statement, by Months and Districts, of Diseases and*

INJURIES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Injuries.												
<i>Dislocations*</i>	1	3	4	2	4	.....	3	2	3	4	4	5
Total cases.....	39											
District of New England.....			1	1							1	
Northern Atlantic District.....		1						1	1	2	2	2
Middle Atlantic District.....		1	2		1							2
Southern Atlantic District.....					1		2					
District of the Gulf.....		1					1					
District of the Pacific.....			1	1	2							
District of the Great Lakes.....	1										1	1
District of the Ohio.....								1				

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.											
1873.						1874.					
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
5	5	8	6	10	7	7	6	7	6	6	11
1	1	1	2	2	2	1	2	2	3	1	1
1	1	3	1	2	2	1	2	2	3	4	6
1	2	2	1	1	1	2	2	1	1	1	2
1	1	1	2	4	1	1	1	1	1	1	2
2	1	1	1	1	1	1	1	1	1	1	1

Injuries.

*Dislocations:**

Total cases.....39

District of New England.

Northern Atlantic District.

Middle Atlantic District.

Southern Atlantic District.

District of the Gulf.

District of the Pacific.

District of the Great Lakes.

District of the Ohio.

VI.—*Relative Proportions of Diseases and Injuries, and of given Diseases and Injuries.*

1. Proportion of Diseases and of Injuries, per hundred, of all Cases treated:

	<i>Per cent.</i>		<i>Per cent.</i>
Diseases.....	88.49	Injuries.....	11.51

2. Proportion of given Diseases, per thousand, of all Diseases treated:

Diseases.	Per 1,000 of all cases treated.	Diseases.	Per 1,000 of all cases treated.
GENERAL DISEASES.....	574.167	DISEASES OF THE DIGESTIVE SYSTEM.....	110.258
Small-pox.....	2.169	Tonsillitis.....	3.643
Measles.....	1.561	Pharyngitis.....	2.082
Dengue.....	3.210	Gastritis.....	3.990
Cerebro-spinal fever.....	1.041	Dyspepsia.....	6.246
Enteric fever.....	14.573	Enteritis.....	1.903
Yellow fever.....	9.022	Dysentery.....	20.992
Ague.....	130.465	Hernia.....	2.255
Remittent fever.....	83.536	Diarrhœa.....	47.797
Simple cholera.....	1.128	Fistula in ano.....	2.169
Malignant cholera.....	.867	Hæmorrhoids.....	4.424
Erysipelas and pyæmia.....	9.367	Peritonitis and ascites.....	2.429
Rheumatism.....	97.849	Hepatitis.....	3.990
Syphilis.....	166.204	Jaundice.....	2.689
Cancers.....	1.041	All other diseases of this group..	5.639
Tumors.....	2.082	DISEASES OF THE URINARY SYSTEM.....	49.445
Phthisis pulmonalis.....	30.187	Bright's disease, acute.....	2.602
Other scrofulous affections.....	2.863	Bright's disease, chronic.....	4.771
Scurvy.....	5.118	Cystitis.....	4.250
Anæmia.....	2.863	Gonorrhœa and complications.....	20.212
Dropsy.....	3.036	Stricture of urethra.....	12.405
All other diseases of this group.....	5.985	All other diseases of this group..	5.205
DISEASES OF THE NERVOUS SYSTEM.....	32.009	DISEASES OF MALE ORGANS OF GEN- ERATION.....	23.249
Inflammation of the brain.....	1.041	Orchitis.....	17.436
Sunstroke.....	1.561	All other diseases of this group..	5.811
Paralysis.....	6.680	DISEASES OF ORGANS OF LOCOMOTION.....	10.408
Epilepsy.....	1.735	Of the bones.....	6.853
Neuralgia.....	16.568	Of the joints.....	2.949
Insanity.....	.867	All other diseases of this group..	.607
All other diseases of this group.....	3.557	DISEASES OF THE CELLULAR TISSUE.....	23.249
DISEASES OF THE EYE.....	12.405	Inflammation.....	.607
Conjunctivitis.....	4.685	Abscesses.....	22.641
Ophthalmia.....	2.169	DISEASES OF THE CUTANEOUS SYSTEM.....	52.394
Iritis.....	3.036	Eczema.....	2.516
All other diseases of this group.....	2.515	Frostbite.....	4.164
DISEASES OF THE EAR.....	1.561	Ulcers.....	31.575
DISEASES OF THE NOSE.....	.347	Whitlow.....	8.154
DISEASES OF THE CIRCULATORY SYSTEM.....	12.665	All other diseases of this group..	5.985
Valve disease, heart.....	4.944	DEBILITY.....	5.638
All other diseases of the heart.....	4.598	POISONS.....	7.460
Diseases of blood-vessels.....	3.123	Alcohol.....	2.429
DISEASES OF THE ABSORBENT SYSTEM AND DUCTLESS GLANDS.....	2.602	Delirium tremens.....	3.817
DISEASES OF THE RESPIRATORY SYSTEM.....	81.715	All other cases of this group.....	1.214
Brouchitis.....	38.862	HUMAN PARASITES.....	.434
Asthma.....	3.904		
Pneumonia.....	23.595		
Pleurisy.....	7.634		
All other diseases of this group.....	7.720		

3. Proportion of given Injuries, per hundred, of all Injuries treated:

Injuries.	Per 100 of all cases treated.	Injuries.	Per 100 of all cases treated.
Burns and scalds.....	3.47	Wounds, incised.....	7.20
Concussion of brain.....	1.00	Wounds, punctured.....	1.27
Contusions.....	49.00	Wounds, lacerated.....	6.93
Sprains.....	9.13	Wounds, gunshot.....	1.33
Dislocations.....	2.60	Fractures.....	18.07

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.*—Continued.

DISEASES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION B—Continued.												
<i>Morbus Coxæ</i>										1		
Total deaths.....	1											
District of the Gulf.....										1		
<i>Scurvy</i>				1								
Total deaths.....	1											
District of New England.....				1								
<i>Anæmia</i>												1
Total deaths.....	1											
Northern Atlantic District.....												1
<i>General Dropsy</i>		1	1								3	
Total deaths.....	5											
District of the Great Lakes.....											1	
District of the Ohio.....		1	1								2	
Local Diseases.												
<i>Diseases of the Brain and Nervous System</i>	4	4	2			3	2	1	1	3	1	1
Total deaths.....	22											
<i>Inflammation of Brain</i>	1	1	1			1			1	1		
Total deaths.....	6											
Middle Atlantic District.....						1						
District of the Gulf.....	1		1									
District of the Pacific.....									1	1		
District of the Ohio.....		1										
<i>Abscess of Brain</i>						1						
Total deaths.....	1											
Northern Atlantic District.....						1						
<i>Congestive Apoplexy</i>	1									1		
Total deaths.....	2											
Southern Atlantic District.....	1											
District of the Gulf.....										1		
<i>Sanguineous Apoplexy</i>											1	
Total deaths.....	1											
District of the Pacific.....											1	
<i>Sunstroke</i>	1	1										
Total deaths.....	2											
District of New England.....		1										
District of the Gulf.....	1											
<i>Hydrocephalus</i>	1											
Total deaths.....	1											
District of the Ohio.....	1											
<i>Paralysis</i>		2	1			1	2	1		1		1
Total deaths.....	9											
District of New England.....		2				1		1				
Northern Atlantic District.....										1		
District of the Gulf.....												1
District of the Pacific.....			1				2					
DISEASES OF THE HEART AND BLOOD- VESSELS.....	4	1		3	2	1	2	1	4	3	3	3
Total deaths.....	27											
<i>Pericarditis</i>					1							
Total deaths.....	1											
District of the Pacific.....					1							

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.*—Continued.

DISEASES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Dropsy of the Pericardium</i>	2											
Total deaths.....	2											
District of the Ohio.....	2											
<i>Valve Disease of Heart</i>		1		2	1	1	1	1	4	3	2	2
Total deaths.....		18										
District of New England.....		1										
Northern Atlantic District.....				1		1		1		1		1
Middle Atlantic District.....									1	^p 2		
Southern Atlantic District.....							^q 1					
District of the Gulf.....					1				1		1	1
District of the Pacific.....									2		1	
District of the Mississippi.....				1								
<i>Hypertrophy</i>												1
Total deaths.....												1
District of the Great Lakes.....												1
<i>Fatty Degeneration of Heart</i>							1					
Total deaths.....							1					
District of the Gulf.....							1					
<i>Heart Disease, (not specified)</i>	1			1							1	
Total deaths.....	3											
Middle Atlantic District.....	1			1								
District of the Gulf.....											1	
<i>Aneurism of Aorta</i>	1											
Total deaths.....	1											
District of the Great Lakes.....	^r 1											
DISEASES OF THE RESPIRATORY SYSTEM.....		4	5	4	3	5	11	7	5	6	8	5
Total deaths.....		63										
<i>Bronchitis</i>		2	2	1	1		3	3		1	3	
Total deaths.....		18										2
District of New England.....												1
Middle Atlantic District.....				1				2				
Southern Atlantic District.....		1										
District of the Gulf.....		1	2				1			1	2	
District of the Pacific.....							1					
District of the Great Lakes.....					1		1					1
District of the Mississippi.....								1			1	
<i>Asthma</i>			1	1			1					
Total deaths.....			3									
District of the Gulf.....							1					
District of the Great Lakes.....			1									
District of the Ohio.....				1								
<i>Pneumonia</i>		2	1	2	1	4	4	4	3	2	5	2
Total deaths.....		30										
District of New England.....				1	1	1	1	1		1		
Northern Atlantic District.....							2	1	1		2	^s 1
Middle Atlantic District.....						1						
Southern Atlantic District.....									1			
District of the Gulf.....		1					1	^t 2				
District of the Pacific.....						1						
District of the Great Lakes.....		1	1			1					3	1
District of the Ohio.....				1								
District of the Mississippi.....									1	1		
<i>Congestion of the Lungs</i>					1		2					
Total deaths.....					3							
District of the Gulf.....					^u 1		1					
District of the Ohio.....							1					

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.—Continued.*

DISEASES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Hæmoptysis</i>			1				1			1		1
Total deaths.....			4									
Northern Atlantic District.....							1					
District of the Pacific.....			1									
District of the Great Lakes.....										1		
District of the Ohio.....												1
<i>Pleurisy</i>									2	1		
Total deaths.....			3									
Southern Atlantic District.....									2	v1		
<i>Empyema</i>						1				1		
Total deaths.....			2									
Northern Atlantic District.....										w1		
District of the Great Lakes.....						x1						
DISEASES OF THE DIGESTIVE SYSTEM.	8	5	8	10	6	5	6	1	3	4	8	3
Total deaths.....												
<i>Pharyngitis</i>			1									
Total deaths.....			1									
Middle Atlantic District.....			1									
<i>Gastritis</i>	1	2									1	
Total deaths.....			4									
District of New England.....		1										
District of the Ohio.....		1									1	
District of the Mississippi.....	1											
<i>Dyspepsia</i>	1								1	1		
Total deaths.....			3									
District of New England.....	1											
District of the Gulf.....										1		
District of the Ohio.....									1			
<i>Enteritis</i>			1				1				2	
Total deaths.....			4									
Northern Atlantic District.....			1									
District of the Gulf.....							1				1	
District of the Great Lakes.....											1	
<i>Dysentery</i>	3		2	6	1		1		1		1	1
Total deaths.....			16									
Middle Atlantic District.....	2										1	
District of the Gulf.....							1					
District of the Great Lakes.....				1								
District of the Ohio.....			1	3								
District of the Mississippi.....	1		y1	2	1				1			1
<i>Perforation of Intestine</i>	1			1								
Total deaths.....			2									
District of the Pacific.....	z1											
District of the Ohio.....				aal								
<i>Intestinal Fistula</i>							1					
Total deaths.....			1									
District of the Great Lakes.....							1					
<i>Obstruction of Intestine</i>						1						
Total deaths.....			1									
Middle Atlantic District.....						1						
<i>Strangulated Hernia</i>						1						
Total deaths.....			1									
Southern Atlantic District.....						1						
<i>Diarrhœa</i>	2	3	3	3	5	3	2		1	2	2	2
Total deaths.....			28									
Northern Atlantic District.....				1					1		1	

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.*—Continued.

DISEASES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Diarrhœa</i> —Continued.												
Middle Atlantic District.....	1		1			1						1
Southern Atlantic District.....						1	1					
District of the Gulf.....	1	1	1	2	2	1	1			1	1	
District of the Ohio.....					1							
District of the Mississippi.....		2	1		2					1		1
<i>Fistula in Ano</i>										1		
Total deaths.....	1											
District of the Gulf.....										1		
<i>Hepatitis</i>											1	
Total deaths.....	1											
Middle Atlantic District.....											1	
<i>Splenitis</i>							1					
Total deaths.....	1											
District of the Gulf.....							bb 1					
<i>Peritonitis</i>												
Total deaths.....	2											
District of New England.....			cc 1								1	
<i>Ascites</i>												
Total deaths.....	1											
District of the Pacific.....								1				
DISEASES OF THE URINARY SYSTEM.....	2		1	3		1			1	3	2	1
Total deaths.....	14											
<i>Chronic Bright's Disease</i>	1			3		1			1	3	2	1
Total deaths.....	12											
District of New England.....						1						
Northern Atlantic District.....				3						1		
Middle Atlantic District.....	1									1		
Southern Atlantic District.....										1		
District of the Gulf.....									1			
District of the Great Lakes.....											1	
District of the Ohio.....											1	
<i>Abscess of the Kidney</i>	1											
Total deaths.....	1											
District of New England.....	1											
<i>Cystitis</i>			1									
Total deaths.....	1											
District of New England.....			1									
DISEASES OF THE ORGANS OF LOCOMOTION.....		1	1		1							
Total deaths.....	3											
<i>Necrosis</i>		1										
Total deaths.....	1											
District of the Gulf.....		1										
<i>Psoas Abscess</i>			1									
Total deaths.....	1											
District of the Great Lakes.....			1									
<i>Spine Disease, (not specified)</i>					1							
Total deaths.....	1											
District of New England.....					1							

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.*—Continued.

POISONS AND INJURIES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Poisons.												
Total deaths.....5	1	1	1					2				
<i>Alcohol</i>			1					1				
Total deaths.....2												
Northern Atlantic District.....			1									
District of the Ohio.....								1				
a. <i>Delirium Tremens</i>	1	1						1				
Total deaths.....3												
District of the Gulf.....		1						1				
District of the Mississippi.....	1											
Injuries.												
Total deaths...10	1			1	2	1		2	1			2
<i>Burns and Scalds</i>	1											1
Total deaths.....2												
District of the Pacific.....												1
District of the Great Lakes.....	1											
<i>Concussion of the Brain</i>					1	1		1				
Total deaths.....3												
District of New England.....								1				
Middle Atlantic District.....					1							
Southern Atlantic District.....						1						
<i>Fracture of the Vault of the Skull</i>								1				
Total deaths.....1												
District of the Great Lakes.....								1				
<i>Fracture of the Base of the Skull</i>					1							
Total deaths.....1												
Northern Atlantic District.....					dd1							
<i>Incised Wound of Chest</i>									1			
Total deaths.....1												
District of the Ohio.....									1			
<i>Fracture of the Spine</i>				1								
Total deaths.....1												
District of the Great Lakes.....				1								
<i>Contusion of the Testicles</i>												1
Total deaths.....1												
District of the Great Lakes.....												1
<i>Unknown</i>												
Total deaths.....1												
Southern Atlantic District.....							ee1					

a Admitted for bronchitis.

b Complication: diarrhœa.

c "Pernicious intermittent fever."

d Following compound fracture.

e Following lacerated wound.

f Following gunshot wound.

g Heart and brain affected.

h Admitted for diarrhœa.

i Complication: erysipelas. (?)

j Admitted for bronchitis.

k Admitted for fistula in ano.

l Admitted for ague; died from exhaustion.

m Followed by effusion.

n Following fracture of the skull.

o From abscess of the brain.

p Admitted for bronchitis.

q Complication: phthisis pulm.

r Admitted for secondary syphilis.

s Complication: diarrhœa.

t Admitted for remittent fever.

u Admitted for ague.

v Admitted for bronchitis.

w Complication: pneumonia.

x Complication: chronic pleurisy.

y Attended with ulceration of the rectum.

z Complication: double diaphragmatic hernia.

aa Admitted with dysentery; peritonitis and perforation of the intestines supervened.

bb Complication: hypertrophy of the spleen.

cc Complication: erysipelas.

dd Accompanied by effusion.

ee The patient died before surgical aid reached him

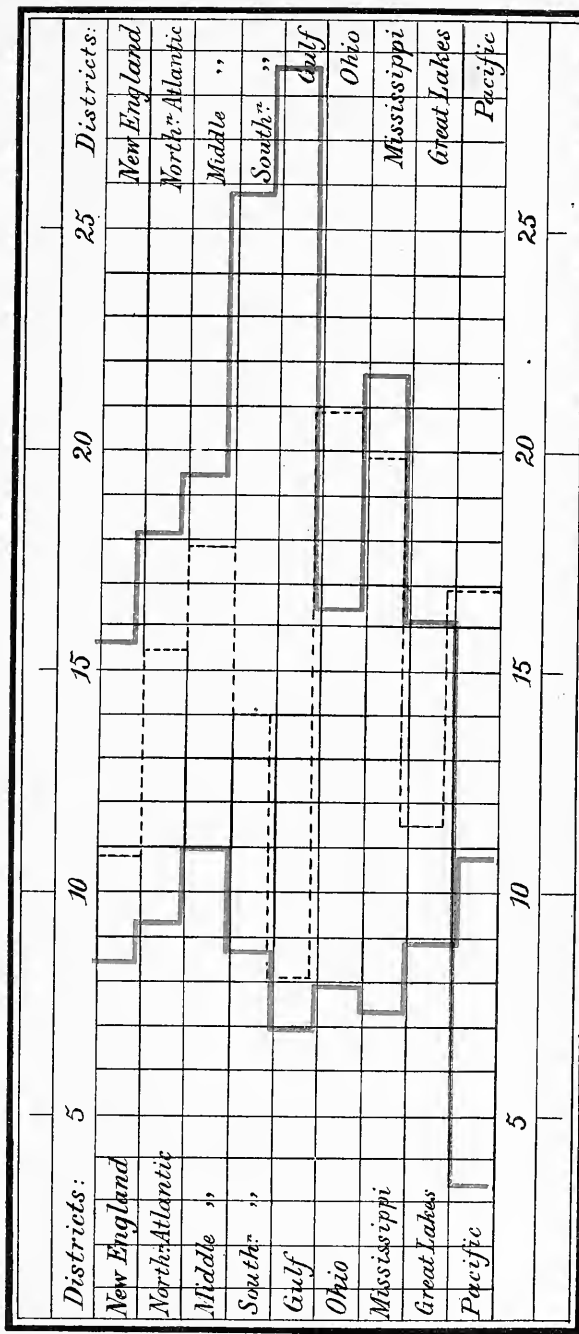
VIII.—Ratio of Deaths from Specific Causes.

Deaths from—	Per cent. from all causes.	Deaths from—	Per cent. from all causes.
GENERAL DISEASES	53.08	DISEASES OF THE CIRCULATORY SYSTEM	6.14
Small-pox	1.97	Valve-disease of the heart	3.94
Cerebro-spinal fever .....	.66	Other diseases of this group	2.20
Enteric fever	6.80		
Yellow fever	8.78	DISEASES OF THE RESPIRATORY SYSTEM	13.82
Ague	2.41	Bronchitis	3.94
Remittent fever	7.90	Pneumonia	6.58
Malignant cholera	1.53	Other diseases of this group	3.30
Diphtheria .....	.44		
Erysipelas	1.09	DISEASES OF THE DIGESTIVE SYSTEM	14.91
Pyæmia .....	.88	Dysentery	3.50
Rheumatism	1.54	Diarrhœa	6.36
Secondary syphilis .....	.88	Other diseases of this group	5.05
Cancers .....	.88		
Phthisis pulmonalis	15.35	DISEASES OF THE URINARY SYSTEM	3.07
Other scrofulous affections .....	.44	Bright's disease	2.63
Scurvy .....	.22	Other diseases of this group .....	.44
Anæmia .....	.22		
General dropsy	1.09	INJURIES AND ALL OTHER CAUSES	4.16
DISEASES OF THE NERVOUS SYSTEM	4.82		
Inflammation of the brain	1.32		
Paralysis	1.97		
Other diseases of this group	1.53		

IX.—Exhibit, by Months, of Extent and average Duration of hospital Relief, prevalent Diseases, and Rate and prevalent Causes of Mortality.

MONTHS.	Number of patients under hospital treatment.	NUMBER OF DAYS' HOSPITAL RELIEF FURNISHED.		Prevalent Diseases.	MORTALITY RATE.			Prevalent Causes of Death.
		Total.	Average per patient.		Actual number of deaths.	Per 100 patients treated.	Per cent. of total deaths during the year.	
1873.								
July	1,854	29,447	15.8	Malignant fevers	46	2.48	10.18	Malarial diseases.
August	2,023	32,300	16.0		45	2.22	9.96	Do.
September	2,256	32,562	14.4		62	2.79	13.72	Yellow fever.
October	2,176	35,702	16.4		49	2.25	10.80	Do.
November	2,093	35,763	17.1		30	1.43	6.64	
December	2,265	40,385	17.8		31	1.48	6.86	
1874.								
January	2,232	42,495	19.0	Consumption and diseases of the respiratory system.	36	1.61	7.97	
February	2,056	35,466	17.2		29	1.41	6.42	
March	1,839	31,153	16.9		30	1.63	6.64	
April	1,653	26,845	16.2		35	2.12	7.75	
May	1,754	28,059	16.0		33	1.88	7.31	
June	1,831	28,262	15.4		26	1.42	5.75	
Monthly average.	2,003	33,203	16.5		38	1.89	8.33	

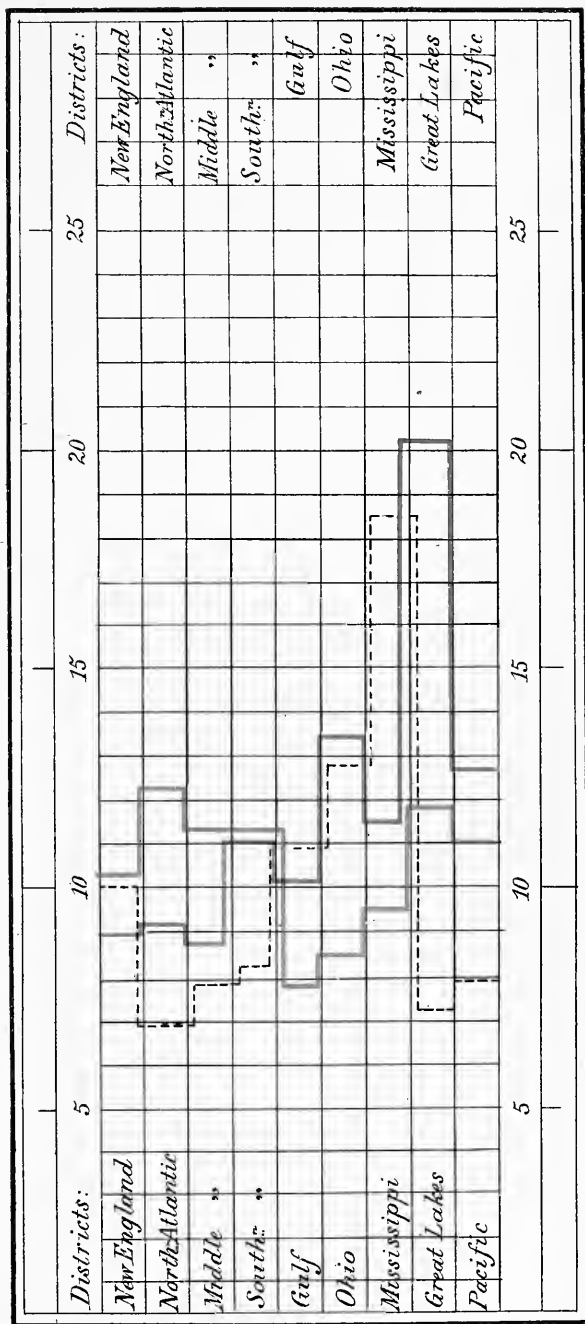
A.—Number of Cases of *Ague and Remittent Fever*, *Rheumatism*, and *Syphilis*, per 100 of the total number of Cases of all Diseases and Injuries treated in each District during the Year ended June 30, 1874.



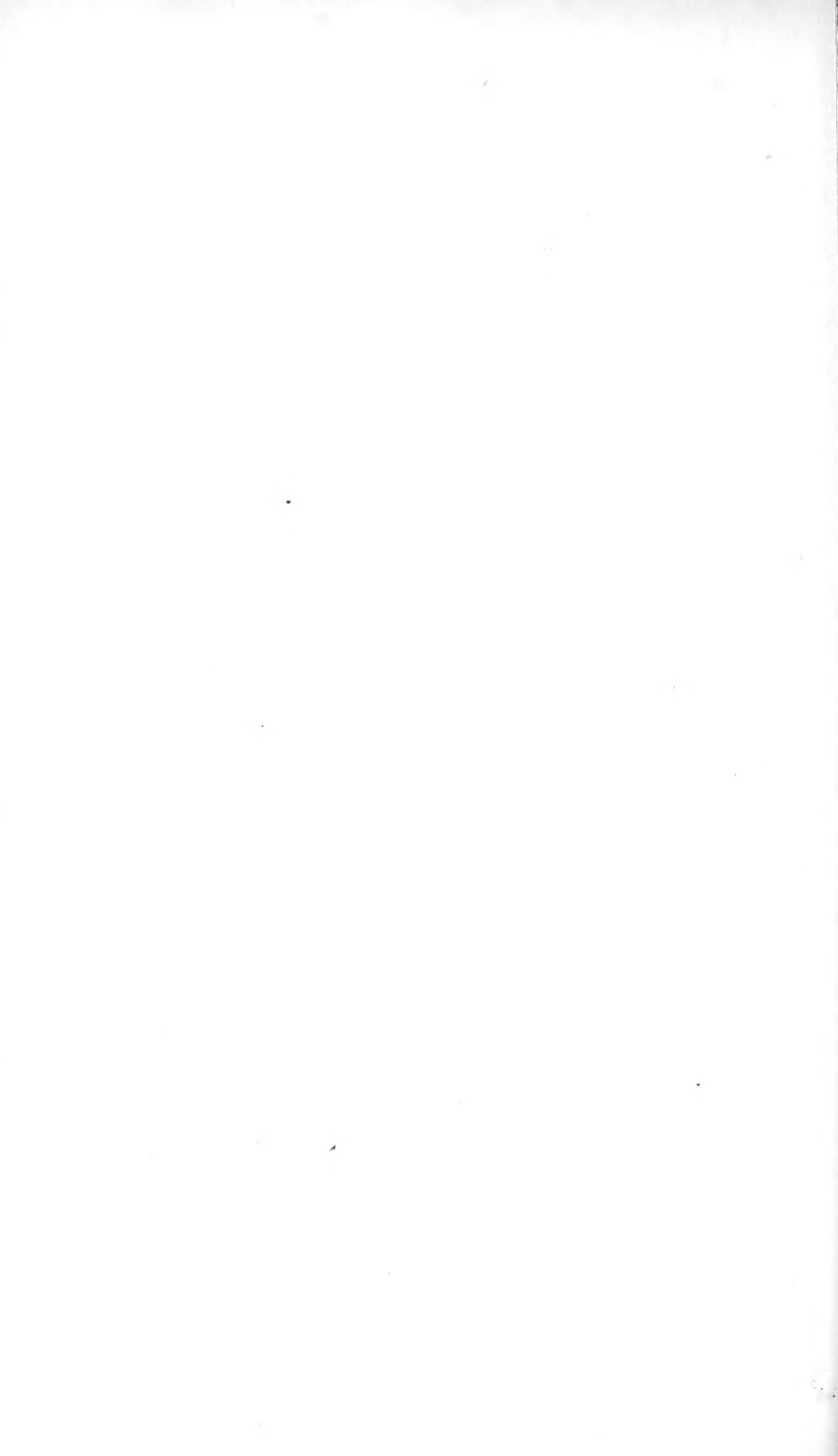
N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

———— AGUE AND REMITTENT FEVER. ——— RHEUMATISM. - - - - - SYPHILIS.

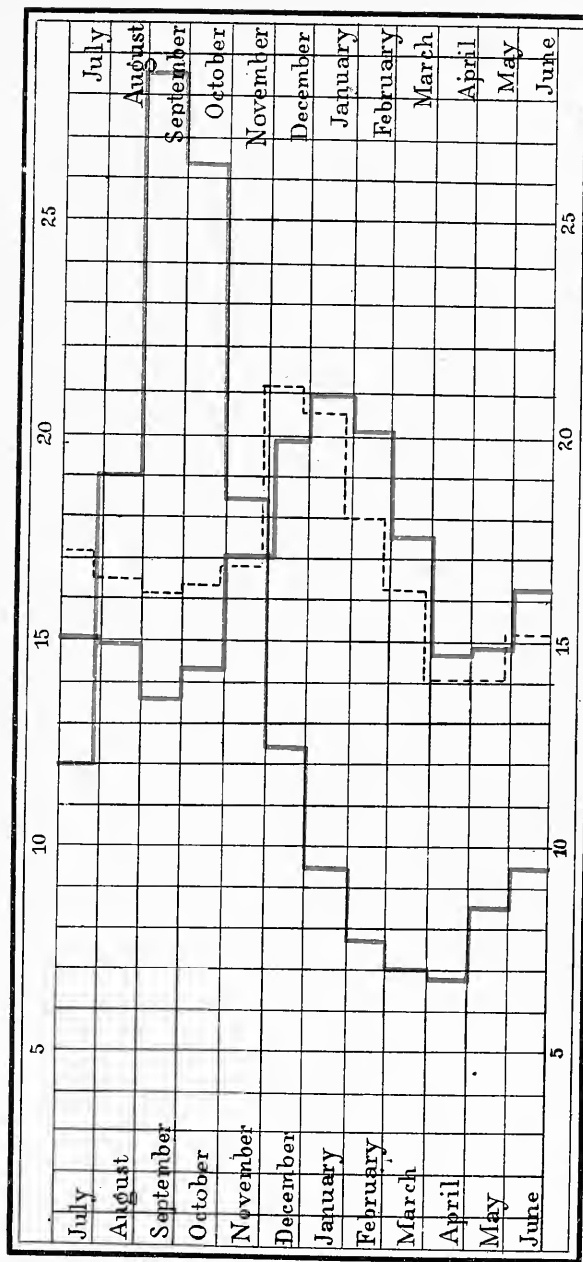
B.—Number of Cases of Phthisis Pulmonalis and Diseases of the Respiratory System, Diseases of the Digestive System, and Injuries, per 100 of the total number of Cases of all Diseases and Injuries treated in each District during the Year ended June 30, 1874.



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C.—Number of Cases of Ague and Remittent Fever, Rheumatism, and Syphilis, treated each Month, per 100 of the total number of Cases of each treated during the Year 1873-'74.

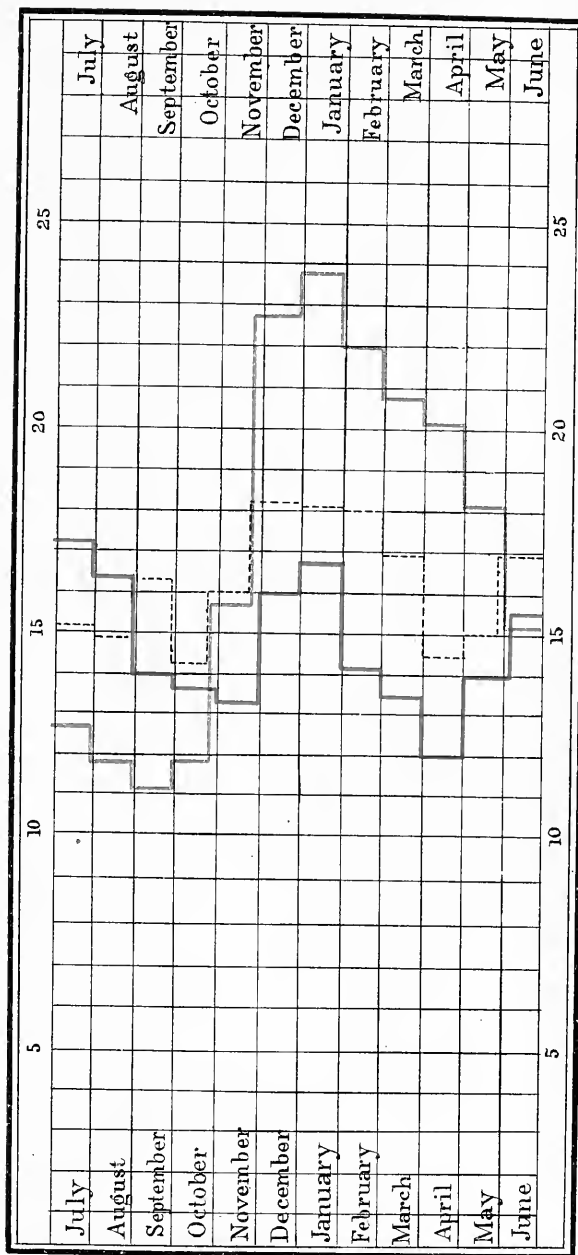


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— AGUE AND REMITTENT FEVER. — RHEUMATISM. - - - - - SYPHILIS.



D.—Number of Cases of Phthisis Pulmonalis and Diseases of the Respiratory System, Diseases of the Digestive System, and Injuries, treated each Month, per 100 of the total number of Cases of each treated during the Year 1873-74.



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PHTHISIS PULMONALIS AND DISEASES OF THE RESPIRATORY SYSTEM. —

DISEASES OF THE DIGESTIVE SYSTEM. - - -

INJURIES.

APPENDIX.

COMMENTS AND NOTE.

BY THE SUPERVISING SURGEON.

COMMENTS UPON THE MEDICAL AND SURGICAL STATISTICS OF THE SERVICE.

THE absence of uniformity in the registration of diseases, and the consequent restricted usefulness of the vast masses of hospital reports, vital statistics, &c., annually published, are matters with which the profession, both in this country and abroad, is thoroughly familiar, but for which, until recently, no adequate remedy had been devised. The preparation and publication of a Provisional Nomenclature of Diseases, under the auspices of the Royal College of Physicians, (London,) its general adoption in Great Britain, and its quasi endorsement by the profession in this country, give promise that in the near future the published observations of medical men will have an increased value, and an approach to scientific accuracy, in the assurance that their use of terms is uniform, and that the terms themselves have a positive and accepted meaning. With such end in view, this provisional nomenclature has been adopted as the nosological system to be observed by medical officers of the Service in their reports and communications; and the results of its use during the current fiscal year are sufficiently pronounced to warrant the belief that statistics of disease among sailors will, in the future, be of practical benefit in helping to determine the effects of seafaring pursuits upon health and life, and thus contribute to the study and progress of preventive medicine.

A wider range in the duration of treatment at the various ports than is indicated in Table IX of these Statistics will be found to exist on examining Table C of the financial and economic series. In the former table the minimum duration is in the Northern Atlantic District—27.9 days; and the maximum in the District of the Pacific—37.9 days. On reference to Table C, however, it will be seen that at the port of New York—the principal port of the district, and in charge of an officer directly responsible to the Supervising Surgeon—the average duration of treatment was only a little over seventeen days; while it was 37, 40, 44.2, 51.2 and 61 days, respectively, at Tuckerton, Sag Harbor, Middletown, Ogdensburg, and Bargaintown, in the same district, and under similar conditions in all respects, except as to frequent inspection by such an officer as that at the port of New York. On the other hand, in districts where the average duration was less than in that of the Pacific, the duration of treatment at some of the more important ports

of such districts was above the duration of treatment at San Francisco; as, for instance, at Wilmington, N. C., in the Southern Atlantic, the duration of treatment was nearly fifty-three days, and at Mobile, in the District of the Gulf, it was over sixty-one days. Nothing in the character of the cases, nor in the prevalent diseases, sufficiently explains these wide variations. The causes are to be sought for in the conditions which have been dwelt upon in the Report proper,^(a) and these figures strongly emphasize the necessity for some such remedy as is therein suggested.

Notwithstanding the occurrence of two epidemic diseases—yellow fever and malignant cholera—during the period embraced by this report, the mortality rate of the Service for the year ended June 30, 1874, is remarkably low. No data are obtainable for purposes of comparison prior to the fiscal year 1871; but during that year the mortality rate was 3.75 per cent.; during 1872, it was 3.94 per cent.; during 1873, it was 5.09 per cent.; while during the past year, it was only 3.58 per cent. This reduction is the more noteworthy, because a greater discrimination is now exercised in admitting patients to hospital than formerly—a constantly increasing proportion of applicants being prescribed for and furnished medicines, or surgical treatment and appliances, without sending to hospital. The result of this course is necessarily to increase the average gravity of hospital cases; and an increased, instead of a reduced death-rate might not unnaturally have been looked for.

The excessive mortality of 1873, however, was due to small-pox, from which cause alone there occurred 131 deaths, or over twenty per cent. of the total number. During the past year there were only twenty-five cases, and nine deaths from this disease, forming less than two per cent. of the total mortality; and the proportion of deaths to cases shows also a less malignant and fatal form of the disease in 1874 than in 1873—the ratio of deaths to cases in the latter year being about forty-seven per cent., as against thirty-six per cent. in the former year. On the appearance of the disease at a port where a medical officer of the Service is stationed, it is his duty to vaccinate all unprotected applicants for relief; and, at the request of a master of a vessel, to vaccinate, if need be, the entire crew. It is not pretended that this can have yet exerted any appreciable influence upon the disease; but there can be no doubt that, with proper co-operation on the part of officers of vessels, the Service is entirely competent to eliminate this loathsome pestilence from the merchant marine.

Among the more prevalent diseases during the year were malarial

^a See *ante* "Port Inspections and Office Duties," page 9.

fevers, rheumatism, and syphilis; these three comprising 47.79 per cent., or nearly one-half of all the diseases treated. They furnish, however, only 12.73 per cent. of the total mortality, phthisis alone, with a proportion of only 3.01 per cent. of all diseases treated, causing 15.35 per cent. of the total mortality. The malarial fevers—ague and remittent, in the proportion of about six to four—occurred most frequently in the District of the Gulf, where they formed nearly twenty-nine per cent. of all cases; while in the District of the Pacific they were only a little over three per cent. Their maximum prevalence was in September and their minimum in April. Rheumatism does not show such fluctuations either in districts or seasons, ranging only from about seven per cent. in the Districts of the Gulf and the Mississippi to less than eleven per cent. in the North Atlantic and the Pacific; and from a minimum of thirteen and one-half per cent. in September to about twenty-one per cent. in January. The mortality from rheumatism is reported at only about one and one-half per cent. of the total mortality; but from causes previously mentioned it is probable that this rate is too low.

Venereal diseases furnish, as usual, the largest proportion of all the cases treated—18.64 per cent. of all cases being due to syphilis (16.62 per cent.) and gonorrhœa, (2.02 per cent.,) in the proportion of eighty-two per cent. of syphilis to the total number of all venereal cases.—It should be here remarked that this preponderance of syphilis over gonorrhœa is due, in part, to the fact that simple, uncomplicated cases of the latter disease are rarely admitted to marine-hospital treatment.—Though these figures exceed those given in Dr. Sturgis' paper,^(a) it is known that they do not fairly represent the extent either of the prevalence of these diseases or of their influence upon the course of other diseases. Almost without exception the cases reported as cystitis, stricture, orchitis, and other diseases of the groups to which these belong—and amounting to about four and one-half per cent. of all cases—are syphilitic or gonorrhœal, and would swell the total venereal to about twenty-three per cent.; while a large proportion of the cases of rheumatism, diseases of the skin, the eye, the bones and joints, &c., are due to, or are complicated with, the syphilitic cachexia. The appended papers sufficiently discuss the potency and widely-spread influence of the syphilitic poison, and the protean forms it presents itself under in marine-hospital wards.

Over fifteen per cent. of the total deaths in marine-hospitals was due to pulmonary phthisis; and when to this is added the mortality from

^a The Scourge of the Sailor—Syphilis—and the Public Health, by FRED. R. STURGIS, M. D.

bronchitis, pneumonia, and other diseases of the respiratory organs—over ten and one-half per cent.—the importance of such special study of the conditions of sea-life in their bearing upon these diseases, as is suggested by Surgeon Heber Smith's *Hygiene of the Forecastle*, and other of the subjoined papers, is apparent. Rosewood fittings, Axminster carpets, and silver plate in the captain's cabin; and darkness, foul air, and moisture in the fore-castle, are incongruities which jar on the senses of even the laic observer; but these conditions in the fore-castle are crimes against hygiene which pay heavy penalties in increased sickness and consequent expense, in short-handed and short-lived crews, and, not seldom, in shipwreck of cabin and fore-castle, captain and crew, in common.

That such an eminently preventable disease as scurvy should still find a place in the annual returns to the extent that it does,^(a) more particularly upon the Pacific coast, would seem to call for some further legislation than that contained in the Shipping Commissioners' Act of 1872. By that act (Sec. 4569 of The Revised Statutes) vessels are required to be provided with a sufficient quantity of lime or lemon juice, and also sugar and vinegar, or other anti-scorbutics. But aside from requiring (Sec. 4564, *ibid.*) vessels bound on voyages across the Atlantic Ocean to carry 60 gallons of water, 100 pounds of salted flesh meat, and 100 pounds of wholesome ship bread for every person on board such vessel, there is no adequate legislation as to the quantity or quality of the provisions for the crews. This would be the less deprecable if shipmasters could be made to understand that "it can be proved that an anti-scorbutic and nutritious diet can be provided for the crews of ships at less cost than the salt provisions still in common use; and it is as easy to demonstrate that we might then safely do away with all special anti-scorbutics, and should, at the same time, very much improve the sanitary condition of our sailors at sea."^(b)

In the surgery of the Service, nothing of unusual interest has been reported; but it may be noted that, although erysipelas and pyæmia were more frequent in the hospital wards than during 1873, the mortality from these causes was less, being 12.2 per cent. in the latter year and 8.3 per cent. in 1874; that in operations requiring the use of anæsthetics, the relative frequency of employment of chloroform was 52 per cent., of ether 35 per cent., and of chloroform and ether combined 13 per cent.; that Esmarch's bloodless method has been

^a In 1872 there were 66 cases reported, 47 of which were on the Pacific coast; in 1873 there were 47 cases, 27 of which were on the Pacific; in 1874 there were 59 cases, 45 of which were on the Pacific, 14 being from foreign and 31 from American vessels.

^b The Lancet.

successfully employed, and is favorably spoken of, as is also the use of the aspirator for a variety of purposes; and that a judicious conservatism, in which the advantages to the patient of the principle of "the least sacrifice of parts" is duly recognized, influences generally the character of operative interference.

It should be added, in explanation of Table IX, that the discrepancy therein shown, viz., an increase in the number of patients treated, and in the duration of treatment during the winter months, while the death rate is, at the same time, markedly reduced, is due to the fact that, on the approach of inclement weather and the close of navigation, many chronic cases, fit for some kind of service during the warm months, apply for, and are admitted to treatment, thus reducing the average gravity of all cases. On the approach of spring these cases are discharged, or leave voluntarily, and the proportionate mortality immediately rises. This is shown more clearly by the accompanying diagrams, where it is seen (C and D) that cases of rheumatism and syphilis—the chief sources of the chronic patients—increase about twenty-five per cent. during the winter months, as compared with the milder months immediately before and after; and that there is an increase of over eighty-eight per cent. in the admissions for phthisis, bronchitis, &c., during the period from November to February, inclusive, as compared with the period from July to October. This latter class of cases, it is also seen, continues to keep up its increased average for a longer period than do the cases of rheumatism and syphilis. On the other hand, cases of injuries, which are for the most part caused in actual service, appear as frequently in June as in February, the slight increase—less than one and one-fourth per cent.—during the three winter months being occasioned by the conditions of service with ice-covered decks, frozen sails, rigging, &c.

NOTE ON THE CONTRIBUTED PAPERS.

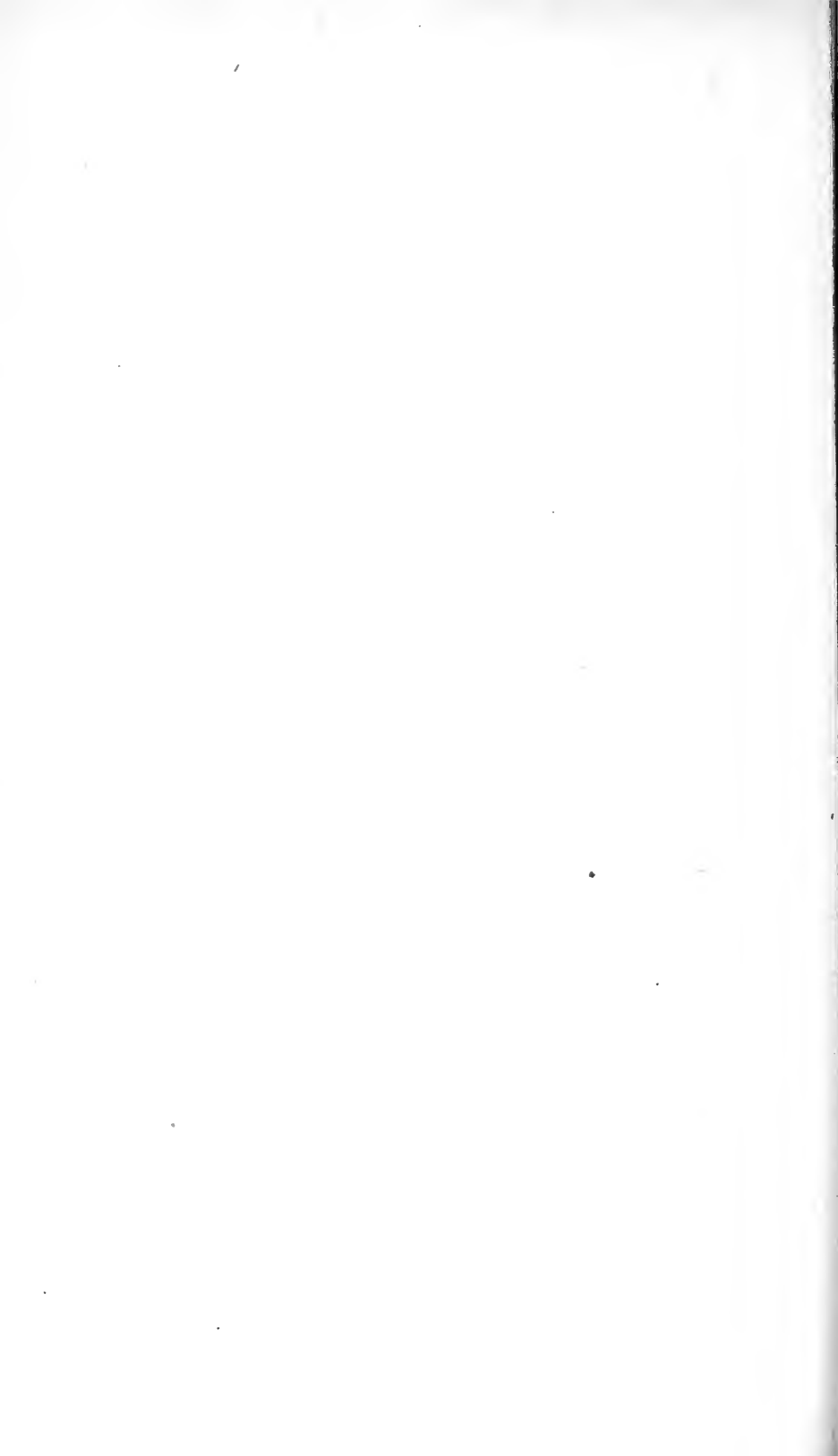
A FIELD peculiarly his own presents itself to the medical officer of the Marine-Hospital Service who takes a broad view of subjects and is capable of distinguishing their correlations; of tracing, *ex gr.*, the effect of seafaring pursuits upon the production, modification, or limitation of diseases; of discerning the bearing of the physical, social, and economic conditions of these pursuits upon their followers; of dealing with the problems of marine sanitation, hygiene, and preventive medicine, and of lucidly setting forth the facts and deductions therefrom, for the prevention, amelioration, or remedy of the causes of the degeneracy of our sailors; in short, of bringing his special knowledge to bear upon the general subject for the general good. With a view to directing effort in this direction, and of attracting the attention of the Corps to these opportunities, the Supervising Surgeon, about the close of the fiscal year, addressed a communication to its members, in which it was suggested that the medical periodical seemed to be the more fitting place for the technical treatment and exposition of strictly medical and surgical topics, rather than the pages of an annual report.

It was further suggested that a class of subjects, rarely treated of in purely medical literature, and of interest to other than strictly professional circles, might legitimately and profitably be discussed in an official document; and that in such an one as that of a Service charged with the care of the physical condition of seamen it seemed peculiarly appropriate to furnish information concerning (1) the diseases and injuries specially incident to seafaring pursuits; (2) the effect of such pursuits upon the production, modification, or limitation of given diseases; (3) the physical, social, and economic conditions and relations of the sailor; (4) the unseaworthiness of sailors as a result of (*a*) originally defective *materiél*, (*b*) faulty hygienic conditions afloat and ashore, (*c*) other causes; (5) the local conditions affecting the Service at various ports; (6) special studies, such as the effects on health of service on iron and on wooden vessels; racial influences as affecting the frequency or manifestation of disease; the importation of epidemic diseases by sailors; the spread of contagious diseases by them, &c.

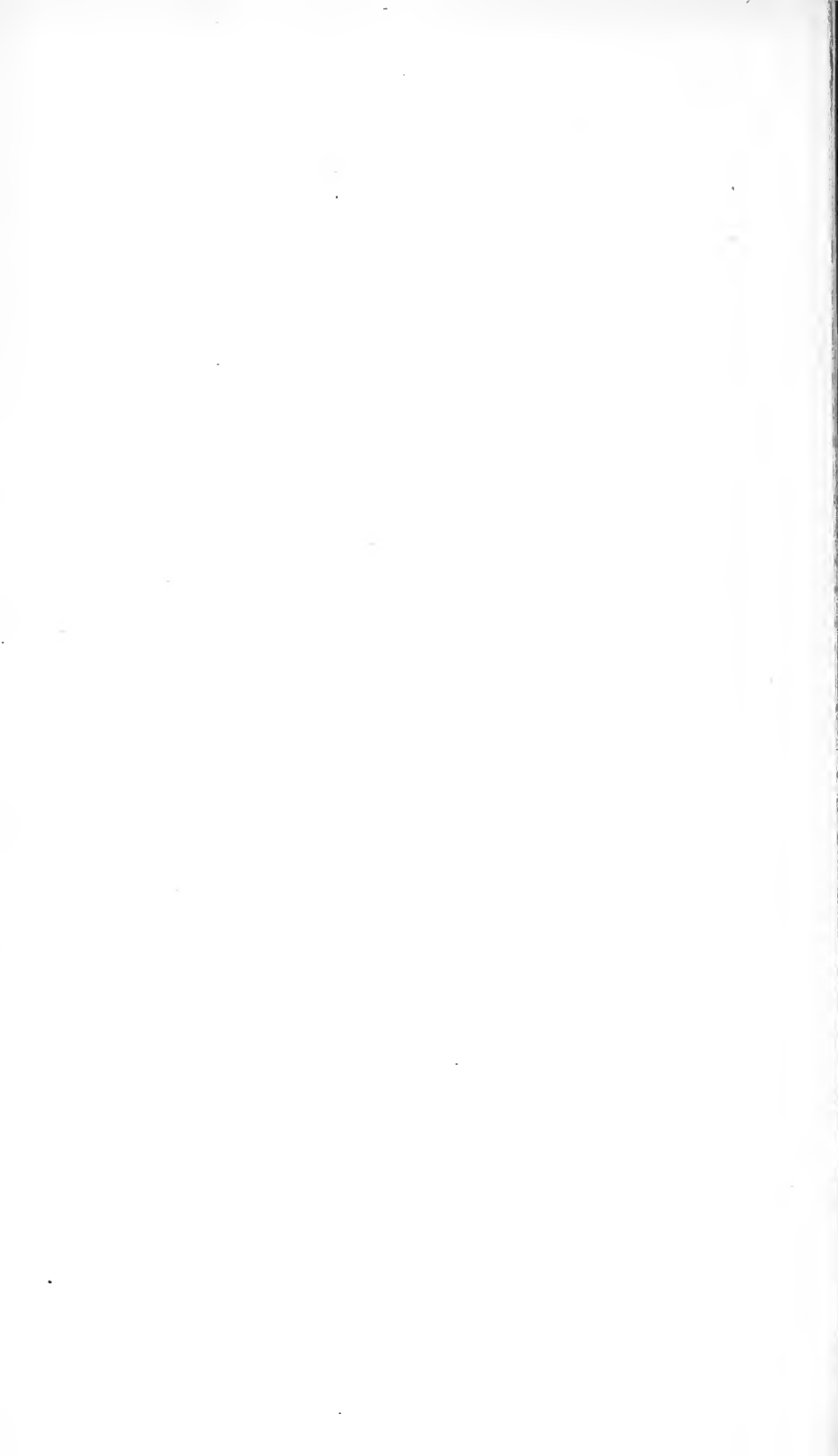
In some cases, where it was believed special facilities existed for treating given topics, these were specifically indicated, as, for instance, Diseases of the Respiratory Organs, as affected by Seafaring Life—

The Local Conditions of the Service on the Coast of Maine—Prevalent Diseases of New England Seamen, &c., were suggested for the New England District: Hygiene in the Forecastle—The Unseaworthiness of Sailors—American Commerce and the Service, &c., were suggested for the Northern Atlantic District: The Importation of Epidemic Diseases by Seamen (with especial reference to yellow fever)—Prevalent Diseases on the Gulf Coast—Points of Contrast between Patients from the Ocean and the Mississippi Valley, &c., were suggested for the Gulf District: The Effects of Emancipation upon Colored Boat-hands—The Freedman and the Service on the Ohio—Contagious Diseases among River-men, &c., were suggested for the Districts of the Ohio and the Mississippi: Preventable Disease among Lake Sailors—The Surgery of the Service, &c., were suggested for the District of the Great Lakes.

In response to that communication the papers herewith presented have been received and, it is thought, make a fair beginning in the direction indicated. The subjects treated of, though with much in common, naturally group themselves into two classes—those relating to the Service in its dealings exclusively with the sailor, and those relating to the Service in its connection with the public health, as affected by or through the sailor; and to this latter class it is desired to attract especial attention, as treating of matters of growing and vital general importance.



THE HYGIENE OF THE FORECASTLE.



THE HYGIENE OF THE FORECASTLE.

BY HEBER SMITH, M. D.,

Surgeon United States Marine-Hospital Service, New York, N. Y.

IN a previous report upon the state of the Marine-Hospital Service, and the conditions which affect the American merchant sailor at this port,^(a) my remarks were confined to the conditions and influences affecting the sailor ashore; their result in lowering the physical standard of our merchant marine; their agency in the production of otherwise avoidable shipwreck and loss of life; and their bearing, both immediate and remote, upon the demand for hospital relief. In this paper it is proposed to consider some of the influences and conditions which affect the sailor afloat, by extending the inquiry to his home upon the water; and the hope is entertained that by presenting, however imperfectly, some at least of the grosser violations of sanitary law under which the men before the mast exist on board ship, that first step will have been taken towards remedy which consists in exploiting the evils to be corrected. Such hope, it may not improperly be added, is warranted by the partial reforms of abuses ashore which the former paper has already been in some measure instrumental in securing.

We often hear from the lips of "old salts" that there are no sailors to-day; meaning thereby that the typical American seaman exists only in tradition. That there is truth in the lament, and that the marine-hospital surgeon has not far to seek for the causes of this decadence, the brokendown wrecks of humanity that throng the approaches to our marine hospitals and the lamentable average of sailors' seagoing lives—now estimated at less than twelve years—make ready answer. English writers, in seeking for the causes that contributed to the success of our arms at sea in the struggle with the Mother Country, have declared that "it was not the seamanship and fighting qualities of our sailors alone that carried us triumphantly through," but rather greater strength and energy of men and better sanitation, resulting in reduced sickness and mortality; and further, that if the same death rate in their navy had continued during the French revo-

^a "The Sailor and the Service at the Port of New York."—*Annual Report of the Supervising Surgeon U. S. Marine-Hospital Service for 1874: Washington, D. C.*

lutionary war, seamen would no longer have been procurable, and their famous victories would never have been achieved.^(a) Should the same test be applied to-day, and should our Navy now, as then, be recruited from the men of the merchant marine, there can be little doubt that the score upon the page would read differently.

In proceeding to the study of the sailor's surroundings while on the water—of the air he breathes between decks, the food he eats, the water he drinks, and the clothes he wears, and their influence upon his health and usefulness—our attention will first and most naturally be directed to the hygienic condition of the forecastle, the sailors' apartment in the house afloat. And in this connection, there should be considered a question of vital importance both to the sanitarist and to the citizen, namely, the part sailors play in the propagation of disease.

While the ocean is the great highway of commerce, it is also the great highway of disease; and those who frequent its trackless paths too often become veritable highwaymen, robbing not only individuals but communities of that which is dearest to them, by developing and propagating diseases which are thoroughly preventable by the simplest sanitary observances.

The forecastle of the ship is to this hour *the* neglected point of sanitary police. The absence of effective measures of protection to seamen, notwithstanding the more or less earnest efforts made in that direction, has become proverbial; but it is particularly noticeable in regard to sanitary requirements, because in this respect sailors are so helpless, and the demand for interference is so urgent. Sailors are not brought under sanitary observation as they should be. They come and go. No one cares for them but to use them for the advancement of selfish purposes; and thus it happens, in the ordering of an inexorable logic, that the public weal is jeopardized by the wrongs that the whole world has knowledge of, but still looks upon with indifference and neglect.

The dissemination of cholera, small-pox, typhus, yellow, and relapsing fevers, and particularly of venereal diseases, in all their varied forms, is, probably, more to be dreaded from sailors flitting about from port to port, than from all other sources. It is indisputable that no outbreak of cholera has occurred in this country that has not been imported here in ships, and that the same is true of yellow fever.

When relapsing fever, that scourge of the poverty-stricken centres of the old world, first made its appearance in this country as a recognized disease, namely, in Philadelphia in 1844, it was shown conclusively to have been brought in Irish emigrant vessels; and, as showing

^aNaval Hygiene, by ALBERT H. GIBON, Medical Inspector U. S. Navy.

the important part sailors played in the dissemination of the same disease when it visited this city in 1869 and 1870, the following extract from the report of Prof. Stephen Smith, made to the New York Board of Health in the latter year, is most significant:

It [relapsing fever] was also discovered at 332 Water street, 337 First avenue, and in the forecastle of the steamboat *Bridgeport*.^(a) A careful examination of these latter cases proved very conclusively that the steamboat employes contracted the fever at 59 Cherry street. One of the steamboat hands lodged at No. 332 Water street, and communicated the fever to the family. On the night of his relapse the sailor lodged with the family of his sister at No. 337 First avenue, and after the usual period of incubation, fever appeared in this family, and five persons suffered.

What an agency sailors have been in propagating venereal diseases, is told in the early history of the New World, from the time that Spanish sailors first infected the natives of the West Indies, up to the eighteenth and nineteenth centuries, when whole tribes were almost entirely swept from many of the South Sea Islands, by a disease unknown among them until the arrival of European navigators.

What sailors are to-day in propagating venereal diseases may be partly shown from the records of this office. From August, 1871, to October, 1874, out of a total of 6,075 patients treated, 1,436 were affected with venereal diseases, being over twenty-five per cent. And even this record is incomplete, for the reason that many sailors are treated for these diseases by physicians in private practice, or "drug-store doctors" prescribing for them over their counters, many of them receiving no treatment whatever. Thus, while it is true that many come under observation at a later period with aggravated symptoms, the fact is still patent that considerably more than one-fourth of the diseases of seamen at this port are of venereal origin.

But this is a problem too vast and complicated for discussion within the limits of this paper. It is not in diseases which involve moral sanitation also, but rather in those in which physical hygiene alone may be of avail, that there is much of promise at the present time.

When the guardians of the public health may by authority "be present at the building of the ship to modify its construction; in the hold where the cargo is stowed to insure cleanliness; on the upper decks to secure light, air, and convenience; at the embarkation to enforce personal ablution, and other preparation for the voyage; on the passage to guard against unforeseen dangers, and to correct the errors of indo-

^a See cut, and description of this forecastle, on p. 114.

lence;"^(a) and, when they may be in the fore-castle first, last, and all the time, to watch over and prevent its inmates from infecting each other and those among whom they may be thrown when they are at length brought to their desired haven—when all these things shall have been accomplished, we may then gird up our loins for an attack upon this Pandora's box of disease, by whose widespread, all-pervading reign medical skill, social science, and vital statistics are all and equally set at naught.

For a graphic portrayal of the sailor as a sanitary subject, I know of none better than is given in this report of Dr. Judson's: "The reckless habits and vagrant propensities of seafaring men, as well as the unsanitary condition of the portions of the city in which they lodge, make them peculiarly liable to become the medium for the spread of contagious and infectious diseases. The services rendered by the sailor to commercial and national prosperity, his exposure to danger and suffering, his romantic and generous disregard of self, and his freedom from domestic and conventional restraints—points in his character and history that have thoroughly enlisted the philanthropist in his behalf—are so many reasons why his sanitary condition should be faithfully studied."

* * * * *

"The diseases and deaths that are witnessed at the Seamen's Retreat, and among the sailors admitted to the New York and Brooklyn city hospitals, are probably, in a very large proportion of cases, the sad results of careless and sinful living."^(b) To give the homeless sailors of our port friendly recognition, and the evidences of human sympathy, is to give them much-needed moral support and protection against numerous and preventable forms of sickness and death.

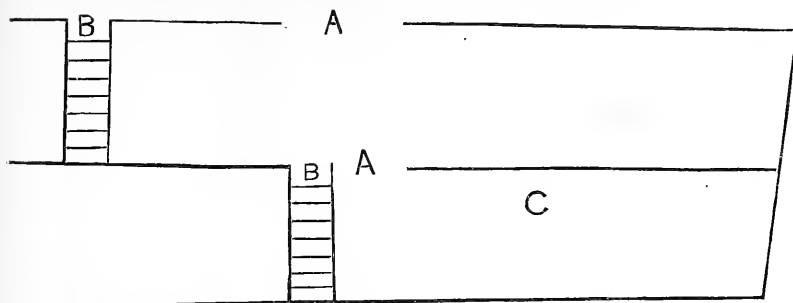
"The sickness rate among seamen is probably greatly augmented by the want of light and air; and by the presence of dampness and filth so often observed in the fore-castles of even the largest and best equipped sailing and steam-vessels. The following notes from my inspections of emigrant vessels will present some of these sanitary defects:

• Steamship *Helvetia*, 3,327 tons. Lower fore-castle twenty-seven feet from stem to bulkhead; twenty-four feet in width at bulkhead; seven and a half feet between decks. Light and air admitted by a hatch six by four feet, and two air ports, each nine inches in diameter, and which are closed at sea; occupied by twenty-eight men in two watches. Very dark; wet from leaky deck; air close and offensive.

^a A. B. Judson, M. D., "Report upon Sanitary Condition of the Waterside and Seamen."—*Report of Metropolitan Board of Health, New York, 1869, pp. 142-151.*

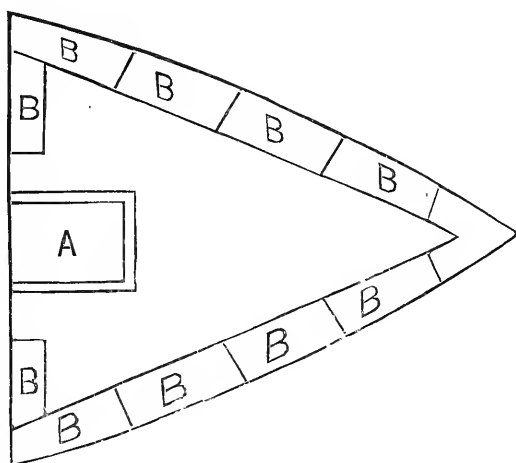
^b "Out of our whole mortality list, consisting of seventy-seven in number, I can single out but ten cases which afforded anything like a fair chance for the successful exhibition of remedies; the balance were in such a wretched state when admitted, induced by starvation and criminal brutality and neglect on board, or by drunkenness and every species of sensual excess on shore, that little or nothing could be done for them."—*Report of Dr. Moffatt, Physician-in-Chief of the Seamen's Retreat, 1856.*

SECTION OF FORECASTLE OF S. S. HELVETIA.



A..Hatchway. B..Companion ladder. C..Lower forecastle.

PLAN OF LOWER FORECASTLE, S. S. HELVETIA.

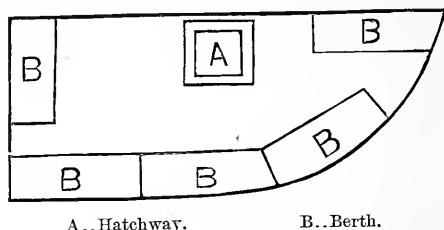


A..Hatchway. B..Berth.

'Steamship *City of Antwerp*, 1,625 tons. Upper forecastle. Sailors' quarters on the port side, approached by a narrow and circuitous passage by stooping under a portion of the anchor machinery. Light and air admitted by passage of entrance; a four-inch stove-pipe hole, and five air-ports, open only in smooth weather; occupied by twenty-two men in two watches. Dark and damp; air close and offensive; berths, bulkheads, and deck, in a dirty condition. The firemen's quarters, on the starboard side, are similar to those of the seamen on the port side, but exposed to the further annoyance and offense of proximity to the passengers' water-closets.

'Ship *Constantine*, 1,280 tons. Lower forecastle for starboard and port watches; twenty-three feet from stem to bulkhead; ten feet wide at bulkhead; seven feet between decks. Companion way steep and difficult. Light and air admitted by companion hatch, thirty inches square, and two air-ports closed at sea. Ten berths in two tiers. Dark and damp; air close, and charged with ammoniacal odors. Bulkheads and berths black for want of scrubbing. Deck slippery with filth.

PLAN OF STARBOARD FORECASTLE OF SHIP CONSTANTINE.



‘To neglect the sanitary care of a ship’s company shows a want of foresight which is not in keeping with the vaunted thrift of successful business men. Short voyages, the preservation of spars and rigging, and the safety of costly ships and human lives, depend in a fair degree on the physical condition of the crew. The ship-owner who wishes to guard his ventures against disaster by the use of all reasonable precautions, must shelter his crew in light, clean, and airy quarters, and take a personal interest in the treatment of the men. In the hundreds of total wrecks and disappearances occurring annually, if the actual truth in each case were ascertained and acknowledged, it is reasonable to suppose that an alarming proportion is due to the reduction of the working power of the crew by unhealthy quarters, unreasonable overwork, and in some cases, by maltreatment.’”

This paragraph, published in 1869, may justly entitle Dr. Judson to the credit of having been among the first to call attention to the important subject of the commercial value of the seaworthiness of sailors, a theme which has of late years, and notably since Mr. Plimsoll’s agitation of the matter, attracted so much attention both at home and abroad.

I desire to supplement Dr. Judson’s description of forecastles by a description and illustration of two that I have found in my inspections, remarkable in two respects: first in showing the manner in which men are stowed away in the least desirable places on board ship, while their comfort and the preservation of their health is made secondary to the preservation of the contents of the sail-room, carpenter’s shop, and boatswain’s locker;^(a) secondly, in showing the overcrowding and ridiculously inadequate means of ventilation provided upon some of the most gorgeous specimens of Sound and river boats, which have been likened to painted harridans—beautiful only in spots.

Ship *Surprise*, of New York; China trade; 1,005 tons; twenty-two years old; rebuilt eight years ago. Topgallant forecastle twenty-three

^a The following is the text of the English law upon this subject: “Every place in any ship occupied by seamen and apprentices, and appropriated to their use, shall have a space of not less than nine superficial feet for every adult, measured on the deck or floor of such space, free from goods, properly constructed, and well ventilated.”

Our statute books define the limits of space which shall be allowed immigrants, but I am not aware that any such provision has ever been made for our sailors.

feet from stem to bulkhead; sixteen feet wide at bulkhead; six feet between decks. This space encroached upon by anchor machinery and water-closets, the latter three and one-half by two and one-half



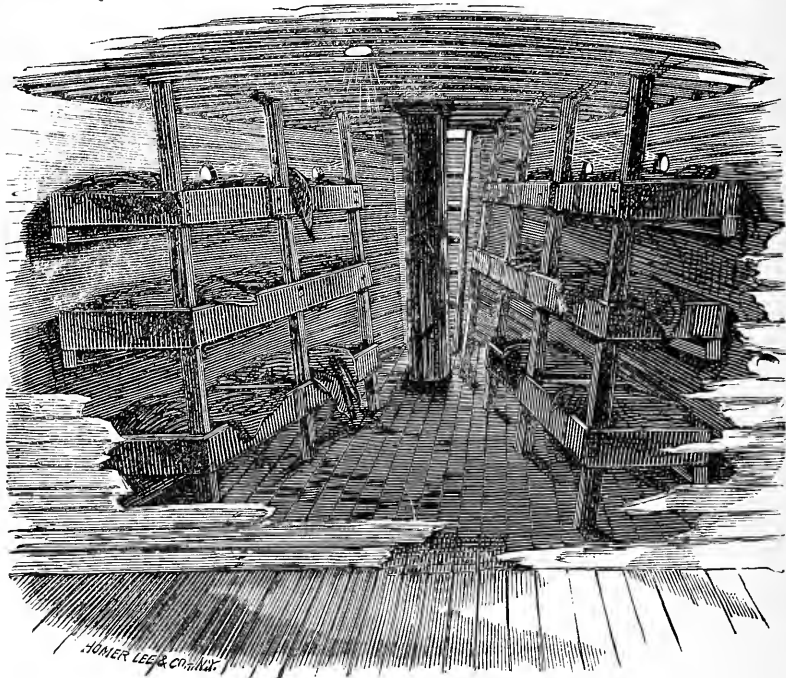
FORECASTLE OF THE SHIP SURPRISE.

feet on each side; nine berths on a side; two five-inch air ports. In heavy weather the men's chests were sometimes washed out on deck by sea coming in hawse-holes. This ship has ample accommodation for all her men in a house on deck, which is occupied, in the order named, as cook's room, galley, boatswain's locker, sail-room, carpenter's and sailmaker's room, third mate, and boys.

Steamboat *Bridgeport*, sixteen years old, plying between New York and Bridgeport. Forecastle between decks forward, extending from stem to bulkhead, a distance of twenty-seven feet; width at bulkhead, twenty-one feet four inches; height between decks, seven feet; twenty bunks, arranged eight on one side, six on the other, and six against bulkhead; four six-inch air-ports and a five-inch stove-pipe hole one

foot forward of the bulkhead. The only entrance through a hatch, three feet six inches by two feet, situated as far forward as possible.

The forecastle of the *Bridgeport* is one of the best of its class, the cubic space per man being about one hundred feet. In the forecastle of one steamboat inspected (the *Continental*) the cubic space per bunk was found to be less than fifty feet, with less adequate means of ventilation than the *Bridgeport* possessed. The forecastles of all this class



FORECASTLE OF THE STEAMBOAT BRIDGEPORT.

of vessels afford illustrations of Dr. Billings' idea of the desire that must have governed the men who planned some of our prisons, namely, to see in how small a space human life could be maintained. They also illustrate the bottle plan of ventilation; for, when it is considered that the air-ports must be closed when under way, and that in rough weather the hatch also must be covered, we have the bottle complete, even to the cork. ^(a)

^a It is easily demonstrated that between three and four hundred cubic feet of air pass through the lungs every hour; and three thousand cubic feet per hour is a minimum amount fixed by one authority on the subject for the requirement of the lungs and skin for the maintenance of health. It follows, then, that one occupant of this forecastle, the hatch being closed, would render the air unfit for respiration several times over in an hour. What must be the condition of things after twenty or even ten men have been confined for an hour in such a hole? And should we not expect relapsing fever and typhus poison to be much more common than they are? It will hardly be claimed by any one that a gale of wind blowing in that hatch, and another equally powerful blast blowing out of the same opening at the same time, would suffice to change the atmosphere rapidly enough to supply to each occupant the thirty or forty cubic feet of fresh air per minute which physiology teaches to be necessary for the maintenance of health. Under such circumstances, the study of the tolerance of noisome

Having dwelt so long upon the dark side of the picture, the average sailor's home upon the water, the contrast may be presented in the following sketches of vessels recently inspected. The first, the ship *Ocean King*, is new, never having made a voyage. She is a splendid specimen of marine architecture, surpassed in tonnage by but one ship in the American merchant marine. Her forecastle is in a house upon the main deck, extending from the main hatch to the foremast, divided by a longitudinal bulkhead into two apartments, one for each watch. The length of each room is 18 feet, width 10 feet 3 inches, height 6 feet 10 inches. There are two windows, about two feet square, and a door upon each side. There are ten bunks in each compartment, and a stove. The cubic space allotted to each man in this forecastle is about 120 feet, which is nearly double the space required by the English law.

The schooner *R. M. Brockings*, Captain A. J. Brown, is an additional illustration of what has been done in the effort to ameliorate the condition of seamen afloat, and is here cited, not so much as an example that can be put into immediate practice upon all vessels, as to show what may be accomplished by earnest effort, not alone by captains and owners, but by seamen as well. This vessel, with a company of eight souls, all told, was found to have no forecastle at all, in the ordinary acceptance of that term, a portion of the cabin being given up to the men before the mast. The room was comfortably fitted with berths, a stove, table, with books and writing material upon it, and the bulkheads were adorned with pictures. All messed together, and the captain had his wife on board.

In speaking of the advantages of this system of treating sailors like human beings, the captain said it was no longer an experiment, but had been practised by him ever since he left the forecastle for the cabin. He required a smaller crew to manage his vessel, and secured a better class of men. They remained on board in port, thus avoiding the demoralizing influences of the boarding-house. The "fostering care" of the shipping commissioner was not required, as there was not the constant shipping and discharging of men usual upon vessels. There had not been a change in the *personnel* of his crew in eight months, and some of his men had been with him two years. The evils of the advance-note system were unknown, as his men obtained their money whenever they wanted it *after* it was earned. It was economical for

atmosphere which the human system is susceptible of acquiring becomes interesting. The truth is, there are too many differences of opinion even yet on the subject of ventilation. More experiment and study are required. We should not see, as in some hospitals, two or three systems to meet conflicting opinions, in the hope that one or the other may meet the requirements of the case, being unable to decide which was founded upon correct mechanical or physiological laws. One set contend that carbon di-oxide is chiefly to be feared, and that openings for the escape of foul air should be near the floors, while others contend that the air, warmed by respiration and contact with the body, rises to the ceiling, carrying animal impurities, which are chiefly to be feared, with it, and should be allowed to escape through openings near the top of the apartment.

the ship in many ways; but one mess had to be provided for, and the men took pride in the vessel, and in keeping her and all her appointments in good order. But one thing seemed required in this vessel to make it the sailor's ideal of a ship, and that was a pecuniary interest in her.

The man who demonstrates by actual practice a way for the effectual and permanent elevation of seamen, is worthy of all honor. May the example of this good captain be speedily and generally followed by others, to the end that the race of true, honorable, manly seamen may not become extinct. The difficulties in the way of the improvement of the sailor's condition have hitherto proved insurmountable; the downward pressure has been altogether too great; the fetters have been too tightly bound for his own unaided efforts to shake off. Are there not other true friends to lend this good captain a hand at the line which is drawing so powerfully upward?

Of the old-fashioned between-decks' forecastles still found upon old vessels, it may be said that they are simply miniature Black Holes of Calcutta. Their ventilation is precisely such as would be obtained in a bottle, for the only serviceable opening is through a small hatch cut in the deck, from thirty to thirty-six inches square. There are no fore and aft openings; and if there are two or three air-ports in the sides of the vessel, they seem to be there for effect only, as they are always closed. The use of wind-sails seems to be unknown upon merchant vessels, as they are never seen in this latitude, except upon men-of-war.

Of late years, the practice of building forecastles between decks has gradually given place in sailing vessels to the better plan of sheltering the crew in a house built upon the upper or spar deck, thus insuring light and airy quarters for the men. This improvement is due more to the requirement of space between decks for cargo than to anything else. The forecastles of steamers are still usually between decks, but much more attention is given to ventilation than formerly, and the greater space between decks, and greater height of steamers' bows out of the water, allow increased cubic capacity to the forecastles, and also permits the opening of the air-ports. Bathing facilities for the engineer department is a new feature in many first-class steamships.

The advantages of having the men sheltered in houses built upon the deck are so many and so obvious that it is not necessary to enumerate them. I will dwell a moment upon one of them, however, as being more likely to be overlooked. Dr. Gihon, in his work on Naval Hygiene, previously quoted, in opening his chapter on Humidity uses the following language:

The great danger the sailor encounters is *water*. Not the mighty deep he traverses, on whose wide waste he is but an indistinguishable speck, and from whose depths he is only separated by a few inches of plank. It is not the water without his vessel that imperils his life, so much as that within it—that which saturates his clothes and bedding, fills the air he breathes, and, creeping in wherever that air can enter, permeates the very tissue of the wood of which his ship is built. This is his enemy; terrible because unseen, powerful because denied; depreciated, and therefore unresisted. Fewer lives are lost by shipwreck than by the operations of this subtle agent. Man's skill has mastered the fury of the ocean. He is able to oppose its storms and currents and go upon its surface as he lists; but he makes no attempt to combat this insidious slayer.

And Fonssagrives, also quoted by Gihon as "the greatest authority on naval hygiene," formulates the experience of all the authors who have written on the diseases of seamen, Rouppe, Lind, Poissonnier-Despérières, Kéraudren, Raoul, &c., in the following words: Qui dit bâtiment très humide, dit bâtiment malsain. This danger, so graphically portrayed, is in a great measure obviated by the house upon deck, exposed as it is upon five of its surfaces to the influence of the sun and external air.

While on the one hand steam-vessels have wrought a great revolution in transportation by water, the change for the better, as regards the physical well-being of the men, has been none the less marked. Shortened voyages, better food and water, and a dwelling-house upon deck, are among the more important blessings conferred upon "poor Jack" by the "great disorganizer," as a famous naval hero was wont to call steam. The advantage resulting from having the voyage shortened one-third or one-half needs no elucidation. What I conceive to be the greatest gain of all to the sailor from the introduction of steam-vessels is the improved food and water which he is enabled to obtain. Steamers almost invariably carry passengers. It has always been the policy of the managers of steam lines seeking a large passenger traffic to relieve the tedium of the voyage as much as possible by the pleasures of the table, and great rivalry exists between different lines, and even between different vessels of the same line. The food being provided in such abundance, it naturally follows that the sailors get a share of it, and to this cause, with the shortening of the voyage, is due the almost total disappearance of scurvy from men serving on steamers.

The shipping act of 1872, besides requiring all vessels making long sea voyages to carry a supply of lime juice, also provides for a daily ration, as follows:

Scale of provisions to be allowed and served out to the crews of merchant vessels, prescribed by shipping act, 1872.

	Bread.	Beef.	Pork.	Flour.	Peas.	Tea.	Coffee.	Sugar.	Water
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pints.</i>	<i>Ounces.</i>	<i>Ounces.</i>	<i>Ounces.</i>	<i>Quarts.</i>
Sunday	1	1½	1¼	½	⅓	½	½	2	3
Monday	1	1½	1¼	½	⅓	½	½	2	3
Tuesday	1	1½	1¼	½	⅓	½	½	2	3
Wednesday	1	1½	1¼	½	⅓	½	½	2	3
Thursday	1	1½	1¼	½	⅓	½	½	2	3
Friday	1	1½	1¼	½	⅓	½	½	2	3
Saturday	1	1½	1¼	½	⅓	½	½	2	3
Weekly allowance..	7	6	3¾	1	1	7⁄8	3½	14	21

[Here any stipulation for changes or substitution of one article for another may be inserted.]

One ounce of coffee or cocoa or chocolate may be substituted for one-quarter ounce of tea; molasse for sugar, the quantity to be one-half more; one pound of potatoes or yams, one-half pound flour or rice; one-third pint of peas or one-quarter pint of barley may be substituted for each other. When fresh meat is issued, the proportions to be two pounds per man per day in lieu of salt meat. Flour, rice, and peas, beef and pork may be substituted for each other, and for potatoes onions may be substituted.

The trouble with the shipping-act ration is that it is not enforced. The law makes no provision for inspections of food, or inquiry as to whether the men receive the food prescribed for them or not. It was intended probably to be a part of the shipping commissioner's duty to see that the law in this particular was complied with, but as there were no fees connected with this part of the duty, it has been entirely neglected.

It has been proposed to substitute for this the ration of the United States Navy, which is far preferable, both in quantity and variety; as will be seen by a comparison of the two.

The following is the component part of the United States Navy ration for each day of the week:

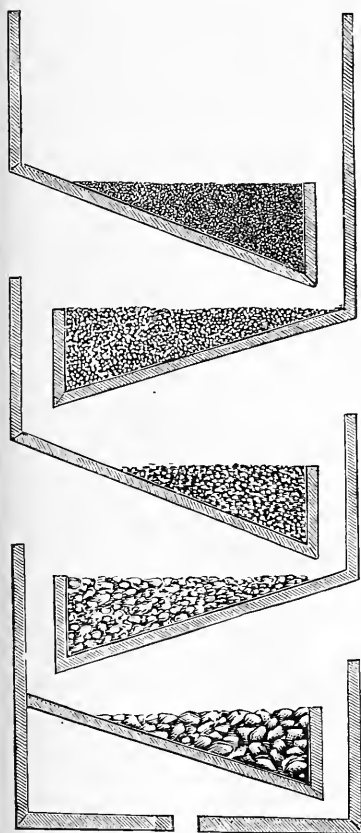
	Beef.	Pork.	Preserved meat.	Flour.	Rice.	Biscuit.	Dried fruit.	Pickles.	Sugar.	Tea.	Coffee or cocoa.	Butter.	Dried potatoes.	Beans.	Molasses.	Vinegar.
	<i>Pounds.</i>					<i>Ounces.</i>								<i>Frac'n of pint</i>		
Sunday	1	1	4	1	½	14	2	4	4	2	2	2	2	½	1	1
Monday	1	1	4	1	½	14	2	4	4	2	2	2	2	½	1	1
Tuesday	1	1	4	1	½	14	2	4	4	2	2	2	2	½	1	1
Wednesday	1	1	4	1	½	14	2	4	4	2	2	2	2	½	1	1
Thursday	1	1	4	1	½	14	2	4	4	2	2	2	2	½	1	1
Friday	1	1	4	1	½	14	2	4	4	2	2	2	2	½	1	1
Saturday	1	1	4	1	½	14	2	4	4	2	2	2	2	½	1	1
Weekly quantity	2	3	1½	1	½	98	4	8	28	3½	14	4	4	1½	1	1

When fresh bread is served, the allowance to be sixteen ounces. Fresh or preserved meat may be substituted for salt beef or pork, and vegetables for the other articles usually issued with the salted meats.

Next in, if not of equal, importance to food in the sanitary scale, is water. The revolution in the manner of supplying vessels with this

indispensable requisite, introduced by steam, is as marvelous as it is benign. Upon the new steamers, *City of Peking* and *Tokio*, condensers, constructed by the eminent engineer Wm. Lightall, are in use, capable of condensing all the water required for use on board, and delivering it into the tanks, reduced to a temperature of 50° Fahrenheit, or to a temperature corresponding to that of the water in which the vessel floats, by being conducted through tubes on the outside of the ship under water. This condensed water is chemically pure, if the condenser is in perfect order, and would be fit for immediate use, except that it is insipid from non-aeration. To remedy this defect, a simple contrivance has been devised by Surgeon Joseph Wilson, U. S. Navy, and is now in use at the Naval Hospital, Chelsea, Mass.

AERATOR, DESIGNED BY SURGEON JOS.
WILSON, U. S. NAVY.



This is constructed in the manner shown in the diagram—the top being about thirteen inches square, length three feet two inches, and the inclination of shelves about 35°, these being nailed to the boards at each side. The bottom has an auger-hole one inch in diameter; and the entire structure is built of three-quarter inch pine boards. As will be seen in the diagram, a layer of pebbles is deposited upon each shelf through which the water percolates; and by the time it reaches the iron tube at the base the aeration is complete.^(a)

The diseases most frequent among seamen of the present day, and which may be considered due in greater or less measure to the influences of their occupation, are consumption, rheumatism, and venereal diseases. The chief factors in the production of the two first are dampness, insufficient and improper food, and insufficient clothing. The insidious effects of dampness, undoubtedly one of the most potent causes of consumption

both ashore and afloat, cannot be more forcibly portrayed than has been done by Dr. Gihon in the extract quoted above. Consump-

^a I am indebted to Surgeon J. S. CLARK, U. S. Navy, for description and diagram of this aerator.

tion ought not to be the fatal disease that it is among seamen. The water of the ocean being eight-tenths oxygen, and the air breathed at sea, except that between decks, pure, it might seem to the superficial observer that consumption should be a rare disease, but there can be no greater mistake. It has been doubtless due to want of accurate knowledge among physicians of the actual conditions to be met with, that has induced them, more frequently in times past than at present, to recommend sea voyages to consumptives. To advise one with consumption, or even with a tendency thereto, to ship before the mast is to invite him to almost certain death. And even where the invalid enjoys the advantages of the cabin, with every facility for warding off dangers, and obtaining the full benefit expected, the experiment is extremely hazardous, and the result much more frequently adverse than beneficial. When the causes of this disappointment are closely studied, the reasons become apparent enough. The dampness and foul air of the ship, semi-starvation, or food not adapted to the wants of the human system, exposure to cold from insufficient clothing, overcrowding, and poisoning from inattention to personal cleanliness, are all calculated to produce, rather than ward off the threatened disease. In the production of rheumatism, dampness, exposure, improper food, insufficient clothing, and vitiated air apply with equal force; and as a result of rheumatism, and the irregularity and violence of the physical exertion called for by the sailors' occupation, organic disease of the heart is very frequently met with among them.

Over 200,000 American seamen die off or are physically disabled from pursuing their avocation every twelve years—nearly 17,000 per annum. Is it any wonder that there is a scarcity of efficient sailors?—that vessels leave port short-handed every day?—that shipwreck and loss of life grow more frequent year by year?—that of American commerce, once without a peer for efficiency, for dash and enterprise, it is now written *Fuit*?

What proportion of this frightful mortality is due to the causes above feebly depicted the sanitary statist is at no loss to determine. How feasible and adequate is their remedy only criminal indifference can much longer ignore. Shipping acts and missionaries, protective associations, and maritime leagues, all have their appropriate sphere and function of usefulness. But the true *pou sto*, upon which they must all finally rest their levers, is to be found in the healthy bodies, growing out of the wholesome lives, of the men before the mast.

Such wholesome lives and healthy bodies will only come as the result of a better Hygiene of the Forecastle.

AMERICAN COMMERCE AND THE SERVICE.



AMERICAN COMMERCE AND THE SERVICE.

BY FRANK W. REILLY, M. D.,
Surgeon United States Marine-Hospital Service.

HAVING been appointed Physician to the Fleet under the command of Lord Rodney, in the beginning of the year 1780, I determined to avail myself, to the utmost of my abilities, of the advantages which this field of observation afforded. This I was led to do, in order to satisfy my own mind as a matter of duty, as well as to find out, if possible, the means of bettering the condition of a class of Men, who are the great Safeguard of the State, but whose lot is hardship and disease, above that of all others.—*Observations on the Diseases of Seamen*; by GILBERT BLANE, M. D., F. R. S. S., Lond. and Edin., etc.; One of the Commissioners of Sick and Wounded Seamen, London: 1799.

It was before the days of Howard that the author of *Rasselas*, the pioneer of "the unabridged," bored by Boswell and suffering from the proverbial ennui of ship-life, oracularly pronounced that mode of existence to be simply imprisonment with a chance of getting drowned—at least, before the culmination of the reforms set afoot by the kindly Quaker, who remembered those in prison and visited them—or the precise and ponderous Samuel Johnson had never been guilty of so grossly inaccurate a definition. No prison, certainly none of modern days, so wretched but life within its walls is preferable, on the score of physical comfort, to the quarters and the life of the sailor on the vast majority of merchant vessels. No gaol-dietary so meagre, no penal servitude so exacting, no exertion of authority so unrestrained and brutal, no such utter want of care and forethought for health and life of convict or felon, as are the rule, and not the exception, for the man before the mast, would be tolerated, if comprehended, by the community. Dibdin and Byron, and Barry Cornwall, Michael Scott and Marryatt and Fenimore Cooper, in sea-song and poem and story, have set up in the popular mind an ideal mythus—a cross between Neptune and Antinous—and an unreal craft, with a subjective fore-castle and no "bilge" to speak of, that walks the waters like a thing of life and her crew love better than a sweetheart. And these are about as near the prosaic and profane, not over-cleanly and thoroughly matter-of-fact "A. B.," and the real vessel which he sails, and "cuts from" as soon as possible, as the pictures of the noble redman and his forest home by one of the same masters.

To a public apathy—excusable only on the theory of this misapprehension of the character and conditions of sea-life and service—is due the existence of much of this evil, which the philanthropist

recognizes and deplures; which the ship-owner and underwriter realize and pay the cost of; and which, thus far, the statesman and political economist theorize over and legislate at in a piecemeal and utterly inadequate fashion. Concededly indispensable to commercial prosperity, as well as to the national safety and honor, the merchant marine of almost every civilized country is substantially the same in its conduct and regulation, in this latter part of the XIXth century as it was when Anson, more than one hundred years ago, lost eighty per cent. of his crew in two years from scurvy; is to-day relegated as completely to the hands of those who have only a pecuniary and shortsighted interest in the sailor—simply as a means to an end—as in the days when the captain of an East Indiaman could clear \$150,000 on a single voyage, while the man before the mast received thirty-five shillings per month for his services. ^(a)

American tonnage is again steadily increasing; and, notwithstanding the terrible blow to our commerce during the Civil War, we are still surpassed by only one flag as carriers for the world. But an American seaman on a foreign-going American vessel is fast becoming unknown. We yet, it is true, furnish masters and officers, not alone for our own vessels but for those of other nations; and our fisheries and coasters are still manned largely by Americans. But the class of men to whom, twenty years ago, was due the fame of the Baltimore clipper, quite as much by their handling of her as by her own intrinsic qualities—who “carried on” in weather that hurried others below, after sending down topmasts, taking in and reefing sail—who made the quickest voyages and the most profitable, as well as adventurous—these men are dying out; and those who should fill their places are making shoes at Lynn, or raising corn on the Grand Prairie, herding cattle in Texas, or drifting and blasting in the silver mines of Nevada. Men whose heritage is the sea, have been driven from it into the overcrowded ranks of labor on shore, secure there at least of decent food, of a habitable dwelling, and of the equal protection of the laws against personal violence and outrage. Those who remain, with a rare exception, are the vicious, the skulker, the “sea-lawyer,” the generally incompetent and worthless. And these deter good men from shipping; these swell the hospital returns; these add to the dangers of the sea.

This is a sweeping and a serious indictment; one of which the truth alone would hardly be the sufficient justification. But it is not merely because it is true that it is recited, but rather that a severe statement of the facts may point the suggestions of remedy; for remedy there must be, or the promise of maritime supremacy, drawn from our in-

creasing tonnage, will be but an empty one. As a high nautical authority has recently said: First in the list of essential requirements for an American merchant navy is *manhood*. We want men—strong, active, healthy bodies, without which we can have neither brains nor souls. And wanting any one of this trinity—body, brain, or soul—the staunchest vessel that ever left the ways is no better than a rudderless hulk, as witness *L' Amerique* and a score of others within the past year or two. What steps are taken to secure either of the three?

Men whose business it is to destroy both property and life are first carefully selected for physical fitness; and then armed, clothed, fed, and sheltered, constantly attended by medical skill, protected against themselves by discipline, and guarded in their rights by articles of war—all in accordance with the highest technical and professional knowledge. And when actually engaged, in anything like the numbers which are constantly employed in the mastery of the sea, sanitary commissions and societies of succor and relief organizations of divers kinds attend upon them; hospitals and homes and asylums are endowed and founded for them; when disabled they are retired and pensioned; and, when dead, the nation, still grateful to them, adopts their widows and orphans, and, mourning for them, decorates their graves and keeps their memories green.

That this should be so is fitting and proper; no care too patient or watchful, no provision too generous nor gratitude too substantial, no meed of glory too ample, for the soldier who sacrifices ease and comfort and risks his life upholding the honor of his country, or in the defence of her homes and firesides, or who, for the deliverance of a race,

— ventures life and love and youth
For the great prize of death in battle.

But is not the sailor in his mission—guiding the white wings of commerce over every sea, weaving alien races and countries together with peaceful ties of industry and mutual intercourse, and making possible the spread of civilization and Christianity throughout all lands—is not he also worthy some individual effort, some public care and protection.

Following a vocation in which his daily life is as abnormal as that of the soldier—subject to similar and fully as demoralizing agencies and conditions—in his isolation from domestic influences and the “moral strength and security that come from settled social life and ties, and thus made the too-frequent victim of his own recklessness and self-indulgence; an adult with the reasoning faculties of a child, and with the lusts and passions of a savage, whose days alternate between the most exacting toil, the sternest privation, the most heroic

braving of personal danger, and the wildest excesses, the most unbridled license"—the lot of the merchant sailor is, above that of all others, one of hardship and disease; and the public indifference to it is a reproach to modern civilization, a disgrace to our common humanity.

The sea is his battle-field, his every voyage a campaign; a battle-field not the less real than those of war, because the elemental forces are here the enemy—a campaign not the less hazardous than those of armies, for its casualties and losses, year by year, nearly decimate the total strength employed. And for this war, waged unceasingly—for these fighters of the waves, outnumbering the standing armies of the world, what provision is made, sanitary, social, legal, or moral?

It is true that the ravages of scurvy have been checked through the efforts of medical skill, but the long-known precautions necessary to prevent its occurrence are yet only imperfectly carried out.^(c) It is true that the outrages of "crimping" and "shanghaiing" are less frequent; but it is also true that sailors may be, and are, imprisoned for refusing to go to sea on vessels in which their physical comfort is less regarded than is that of the live stock on board^(d)—not only this, but on vessels so notoriously unseaworthy that their fate is confidently predicted, and the predictions as certainly fulfilled.^(e) It is true that laws innumerable cumber the pages of the statute books for the protection of life at sea; but the subjects of such care are the passengers, not the sailors; and poor food, wretched shelter, and a merciless task-mastery, enforced with steel knuckles and the belaying pin,^(f) by authority which, through the law itself, is supreme on board ship, do not come within the scope or cognizance of such legislation. It is true that Shipping Commissioners' Acts in this country and Merchant Shipping Acts abroad have been enacted, with elaborate provisions for modes of shipping and discharge, for the punishment of offences by seamen, and with schedules, and tables, and fees *ad libitum*; but it is also true that, since the maritime code promulgated by Richard I, and founded on the *Rôles d'Oléron*, there has been no substantial change for the better in the legislative care and protection of seamen. And it is also true that, while boards of health and sanitary organizations, and municipal ordinances, and national enactments, have been established for the prevention of disease and the protection of health and life on shore, we may yet look in vain in the fore-castle for a parallel to the drainage and ventilation and light requirements of a board of health in dealing with tenement-houses;^(g) or in the ship-yard or dock for an officer with the same authority to forbid the employment of an unseaworthy ship as an

ordinary policeman possesses on land to prevent the use of an unsafe dwelling, or to cause the repair or removal of an insecure structure.

What Plimsoll has done in England to remedy one class of abuses, may be done in this country to remedy other, and not less important—for, as has been justly remarked, it is useless to argue that any vessel, however perfect her build, her material and belongings, the position of her load-line, or the stowage of her cargo, can be even comparatively safe if she is manned by a physically incompetent crew. And before physical incompetence can be weeded out—before medical inspection can be enforced—before any material improvement in the physique of the men before the mast need be looked for—we must have the same sanitary effort, the same intelligent interest in the food, the clothing, and the shelter questions for the merchant navy, that now obtain both in civil and in military life ashore. Nor should it be forgotten, in the discussion of these subjects, that it can be shown to be not only not costly, but even pecuniarily profitable, to do the hygienically-correct thing in the premises. The *argumentum ad crumenam* must not be lost sight of in addressing the commercial mind; and just as certainly as that scurvy can be prevented by the use of a diet costing no more than one which will produce it—as that topgallant forecastles, made necessary by the encroachments of cargo, are as cheap and more healthy than the old-fashioned 'tween-decks—and as that the substitution of the modern system of sanitary inspection for the barbarous practice of a quarantine of detention, while it puts money in the shipper's purse by relieving him of vexatious delays and expenses, collaterally benefits the man before the mast in securing some compliance with the laws of health—just as surely as these things are so, so sure is it that whatever outlay goes to promote the sailor's comfort and to preserve his health, and so to increase his working power and endurance, is a good investment.

This, then, is the part the medical officer of the Marine-Hospital Service may take in the promised rehabilitation of American Commerce: To study the sailor, not only in the hospital wards for purposes of cure; but in the fore-castle and cook's galley and hold on board ship, and in the shipping office and boarding-house and usual places of resort on shore, for purposes of prevention—in short, to find out, if possible, the means of bettering the condition of a class of men whose lot in 1874 is, as it was a century ago, hardship and disease above all others. And there needs no better model for such work and study than the earnest, kindly, and sagacious old Physician to the Fleet, Sir GILBERT BLANE.

a History of Merchant Shipping and Ancient Commerce. By W. S. LINDSAY. Vol. 2, p. 472. Also, Appendix, No. 12, *ibid.*, pp. 583-4.

b Lemon juice as a specific against scurvy was known more than two hundred and fifty years ago, as is shown in The Surgeon's Mate, or Military and Domestic Medicine; by John Woodfall, Master in Surgery; London, 1636; and was first officially introduced into nautical diet in 1795, through the efforts of Drs. Blair and Gilbert Blane, Commissioners of the Board for Sick and Wounded Seamen. And yet on December 1, 1873, the American ship *Cultivator* was picked up in distress off the port of San Francisco by the United States revenue-cutter *Oliver Wolcott*, with all hands disabled from scurvy; and the report of Marine-Hospital Surgeon ELLINWOOD, who was directed by the Supervising Surgeon to investigate the facts, states that the vessel was insufficiently provisioned on leaving New York, and the meats were in bad order, so that on making Cape Horn rations both of food and water were reduced, and thereafter further reductions were made. Four months out from New York fifteen men were down with scurvy, the crew consisting of seventeen men and two boys. About November 15th the British ship *Magna Charta* relieved their distress at sea by fresh supplies of food and lime-juice, and probably saved several lives. Surgeon ELLINWOOD adds: "The fact that the ship was insufficiently provisioned must have been apparent when she sailed from New York, for the men, who are unusually intelligent, told me that they so informed the officers before sailing."

c "In the autumn of 1870 the Privy Council issued an order that no sheep should be imported into English ports after the 30th of September or before the 1st of April, unless sheltered from the weather on board. On March 25, 1871, seven men, for refusing to proceed to sea in a ship in which their sleeping bunks were, as was proven, 'very wet, so much so that they were obliged to sleep in their oilskin clothing,' were brought ashore, handcuffed by the Margate police, and chained together on the jetty, and were followed by a great number of people, 'many deprecating the manner in which they were secured;' and the report adds that they were committed to the county gaol for twelve weeks' hard labor."—(Our Seamen: An Appeal. By SAMUEL PLIMSOLL, M. P. P. 45.) And within a very recent period the crew of a Philadelphia vessel were arrested and imprisoned for desertion, after it was shown before the Commissioner that the provisions supplied were unfit for use, that her fore-castle was wet and uninhabitable, and the vessel herself leaky and dangerous.

d Mr. Stephenson, the Secretary to Lloyd's, read before the Royal Commissioners the following letter from the mate of a ship to his sweetheart, (see Minutes of Evidence, p. 240:)

"DEAR LIZZIE: We sail to-night, and I wish she was going without me, for I don't like the look of her—she is so deep in the water. But I won't show the white feather to any one. If she can carry a captain, she can carry a mate, too. But it's a great pity that the Board of Trade doesn't appoint some universal load water-mark, and surveyors to see that ships are not sent to sea to become coffins for their crews. But don't torment yourself about me. I dare say I shall get through it as well as anybody else. Hoping that you may continue well, I remain yours, fondly,
TOM."

The ship went to the bottom with all hands. "That," said the witness, "was an instance of a vessel going to sea with competent persons on board, who knew she was going to the bottom. He had received many letters of this kind." (Ship Ahoy, p. 2 of Appendix, by SAMUEL PLIMSOLL.) See also PLIMSOLL's *Our Seamen, passim*.

e "Out of our whole mortality list, consisting of seventy-seven in number, we can single out but ten cases which afforded anything like a fair chance for the successful exhibition of remedies; the balance were in such a wretched state when admitted, induced by starvation and criminal brutality and neglect on board, or by drunkenness, and every species of sensual excess on shore, that little or nothing could be done for them." (See Report of Dr. Moffatt, quoted by Surgeon HEBER SMITH.)

Extract from Monthly Report of Sick and Disabled Marine-Hospital Patients, Apalachicola, Fla.

"REMARKS: S. B. Nelson, admitted from the brig *Adeline Richardson*, of New York, November 28, about 11 o'clock A. M.: died the following day about 11 A. M. Unable to answer any questions on admission; on stripping his body he was found to be covered with bruises, apparently inflicted with a stick or billet of wood, and in the left hypochondrium severe contusions, as though he had been kicked with the toe of a boot or shoe. The function of deglutition was suspended, and treatment was of no avail. *Post mortem* revealed rupture of the spleen. Walter Tibbitts, admitted same date from the same vessel, also comatose, and died about the same time as Nelson. This man had few marks of bodily violence, but his appearance indicated inhuman treatment by being driven when not able to do duty."

In the affidavit of Captain N. C. Johnson, master of the American ship *Sovereign of the Seas*, recently given before United States Commissioner Stillwell at the port of New York, concerning J. W. Carey,

his first mate, the captain says, "that in the whole course of my forty-two years' experience as a seaman I never had to do with, or knew, so unreasonable and brutal a man to seamen." But Carey stopped short of actual homicide, only driving one man insane by his cruelty. a description of which was given by one of the crew, under oath, thus: "That, notwithstanding, [the remonstrances of the captain,] Carey continued his abuse and ill-treatment of Bron daily, and, to avoid being seen by the captain, ordered Bron under the topgallant forecandle, and there did to him what he pleased, frequently leaving him with his face all covered with blood, using for the purpose of beating him either his fists or anything that first came to hand."

What a lurid light do these facts, which might be multiplied *ad nauseam*, (see Among our Seamen; by J. GREY JEWELL, M. D., late United States Consul at Singapore,) throw upon the following table from The (London) Lancet of May 23, 1874:

Mortality in the British Merchant Service out of the United Kingdom.

Supposed cause of death. (202,239 men employed.)	As it was in 1873.		As it would have been if same ratio as Royal Navy in 1872.	
	No.	Ratio per 1,000 men.	No.	Ratio per 1,000 men-of-war's men.
Disease and natural causes	1,653	8.17	1,223	* 6.05
Drowned by shipwreck	2,231	11.04		
Drowned otherwise	1,032	5.10	238	1.18
Other accidents	291	1.44	222	1.11
Murder and homicide	5	.024	4	.02
Suicide	41	.203	30	.15
Unknown causes	140	.693		
Total for legal inquiry	3,740	18.5	494	2.45
Mortality out of United Kingdom	5,393	26.67	1,717	8.5

*Including deaths in the United Kingdom.

†Including gun exercise and action.

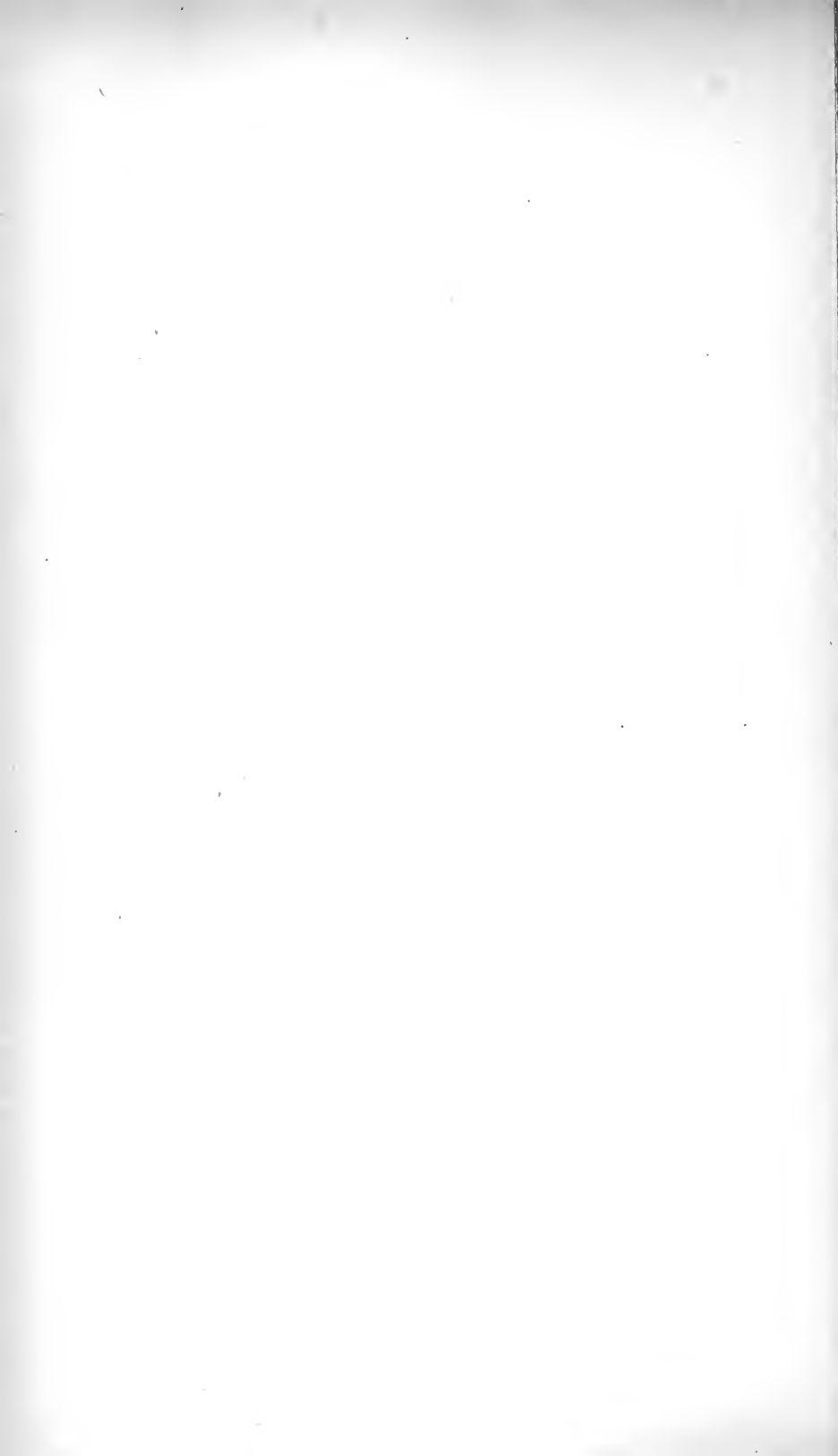
After pointing out that, as no medical inquiry ascertains the cause of such deaths upon the high seas as are supposed to result from disease, so no legal investigation by coroner or otherwise follows upon suspicious or sudden deaths at sea: and that during twenty years no person has been put on his trial for causing a death at sea otherwise than by red-handed murder, The Lancet observes that, "With whatever this violent death-rate be compared, it shows a vast waste of human life. That a great deal of this vital waste is quite beyond the natural risks of the sea, and is easily preventable, seems, in the absence of any legal inquiry, to be a reasonable conjecture. Before anything can be done to stop this vast accession of 'drownings,' a coroner must inquire, in each individual case, according to the old sea law, 'whoe killed him, and unto whome the ship did belong.'"

Lest it may be thought the descriptions of forecastles given in Surgeon HEBER SMITH's paper are highly colored or distorted by a too lively sympathy, take the following from Mr. Lindsay, author of the volume already quoted—Merchant Shipping and Ancient Commerce—himself a large ship builder and owner, and a writer certainly not obnoxious to the charge of dilettante sentimentalism. Mr. Lindsay says that as he "has a most vivid recollection of the forecandle of the ship in which he served his apprenticeship, a description of it may serve to illustrate an ordinary specimen of the sea-homes of sailors forty years ago;" and it will be seen, by comparison with Surgeon SMITH's illustrations, that there has been little improvement since. After describing the vessel, her build, &c., he says: * * *

"This place, which was in the 'tween-decks at the extremity of the bow, may have been about twenty-feet in width at the after or widest part, tapering gradually away to a narrow point at the stem. The length in midships was somewhere about twenty feet, but much less as the sides of the vessel were approached. The height was five feet from deck to beam, or about five feet nine inches from deck to deck at the greatest elevation between the beams; the only approach to it being through a scuttle or hole in the main deck about two and a half feet square. Beyond this hole there were no means of obtaining either light or ventilation, and in bad weather, when the sea washed over the deck, the crew

had to do as best they could without either, or receive the air mixed with spray, and sometimes accompanied by the almost unbroken crest of a wave, which, in defiance of all the tarpaulin guards, too frequently found its way through the scuttle. Here fourteen persons slept in hammocks suspended from the beams, and had their daily food. There was no room for tables, chairs, or stools, so that the tops of their sea-chests, in which they kept their clothes and all their possessions, were substituted for those useful and necessary household articles. In fact, so closely were these chests packed, that it was difficult to sit astride them—the mode which the sailors found most convenient for taking their meals—especially in rough weather. But the whole of this limited space was not appropriated to the use of the crew, for it contained a rough deal locker, in which the beef and soup kids and other utensils were kept, while the stout stanchions or knight-heads which supported the windlass on the upper deck came through the fore-castle, and were bolted to the lower beams; and too frequently, when the ship was very full of cargo, a row of water casks and provisions were stowed along the after bulk-head, which was a temporary erection; while on the top of these, cables, coils of rope, and numerous other articles were piled. At all times it was a foul and suffocating abode, and in bad weather the water and filth which washed about the deck and among the chests and casks, created the most intolerable and loathsome stench. Here, however, these fourteen sailors and apprentices slept, washed, dressed, and had their food, consisting almost entirely of inferior salted pork, beef, which was sometimes nearly as hard and unpalatable as the kids in which it was served, and brown biscuits, too often mouldy and full of maggots. To make matters worse, the fore-castle of the ship, to which the Author refers, was full of rats, and he has the most vivid recollection of one of these animals on more than one occasion finding its way into the hammock where he slept. In the West Indies the place was so suffocatingly hot that the sailors invariably slept wherever they could find a clear place upon deck or in the tops; and in winter, when approaching the English Channel, or when on an intermediate voyage to the Bay of Fundy, it was as bitterly cold, no stoves or fires of any kind being allowed on board except in the galley and in the cabin. No Siberian slaves ever suffered so much from the intensity of the cold as did those of the sailors and apprentices of that ship, who did not desert during two months of a winter when she lay at anchor in one of the roadsteads of the Bay. The bow-ports were then obliged to be open to receive the cargo, and could only be covered with matting during the night. One of these ports opened upon the fore-castle, so that its occupants might almost as well have slept upon deck, their damp clothes, as they lay upon the chests or hung suspended from the beams, being frequently frozen to such an extent that the ice had to be beaten from them before they could be again used."

UNSEAWORTHY SAILORS.



UNSEAWORTHY SAILORS.

BY C. HENRY KING, M. D.,

Physician-in-Chief, Seamen's Retreat Hospital, Staten Island, N. Y.

AFTER three years' experience and observation in charge of a hospital where none but sailors are admitted, the writer, in his annual report of the institution for the year 1872, made substantially the following remarks concerning the physical condition of the patients under his care: Many of these men present evidences of utter unfitness for sea-life, and inquiry reveals the fact that sailors are often shipped suffering from consumption, syphilis, and other diseases at the time of their enrolment. Much suffering to the men, inconvenience to their captains, and, possibly, shipwreck and loss of life, might be avoided if more care was exercised in selecting a ship's crew. In not unfrequent instances a ship leaves port and has accomplished but a few miles of her voyage when it is discovered that a portion of the crew are laboring under disease which renders them unfit for duty, deprives the ship of their services, increases the labor of those who are well, causing discontent, if not insubordination, and occasioning expense to the vessel as soon as she arrives in port. Nor does it cease here. The men are placed in hospital; the vessel is again ready for sea; but they are not. The captain is obliged to pay them off, leave them behind, and ship others to have the same thing repeated. This is sometimes the fault of the captains, at others the result of concealment and duplicity on the part of the men, who would have been much better off to have remained on shore in the first instance and received medical treatment. There is a way in which to remedy this crying evil, viz: To have one or more physicians, appointed by the Government or otherwise, in each large port to examine every sailor before he signs the articles. This is the custom in the Army and Navy, and the merchant marine largely outnumbers both these services combined. The expense attending this examination would be slight compared to that now occasioned by its absence, while its benefits would be manifold.

Almost at the same time, but several thousand miles away, Dr. John Patterson, superintending surgeon of the British Seaman's Hospital at Constantinople, set forth the same facts in the following language:

I would call the attention of Her Majesty's Government to what I deem a subject of sufficient importance to include in this report, viz.,

the broken-down condition in which men arrive at the port of Constantinople.

Since the introduction of screw-steamers into the Levant, Danube, and Black Sea trades, men are landed at hospital, suffering from severe forms of chronic disease and broken-down constitution. The majority are shipped in a diseased state, and many of them barely reach Constantinople alive.

Cases of foul chronic ulcers, constitutional syphilis, in every form, chronic skin diseases, old and broken down drunkards, men far advanced in consumption, and old men far beyond the period of active service, seem to be indiscriminately shipped.

The nature of the work, and the very imperfect hygiene—conditions which obtain on board many of the vessels—soon tell upon them.

They break down in a few days—are left behind in hospital; they require very prolonged tonic treatment before they rally, and many have to be sent home even in a state of debility, as it is impossible (especially in this climate in winter) to recover strength perfectly in hospital; and there is no accommodation out of hospital for convalescents.

In their report to Parliament dated December 21, 1872, the Assistant Secretaries of the Marine and Financial Departments of the (English) Board of Trade, and to whom the foregoing statements of Dr. Patterson were addressed, made the following comments thereon:

One point very strongly urged on our notice, at some ports, is the necessity for instituting a medical examination of seamen before they are shipped for the voyage. Under the present law this examination can be made, provided the owner and men agree to it, and the owner pays for it. Practically, the provision is a dead letter. As between the owner and the men, we should not recommend any more stringent law than the present; but a very important consideration has arisen, viz., that as the State pays very large sums for the medical and hospital expenses of distressed British seamen abroad, and for their maintenance and conveyance home, the State, merely in the interest of economic expenditure, might properly insist on a medical examination of seamen.

The proposition fairly open for consideration is, Should not the ship-owner always be called on and required to pay for diseased sailors left abroad, unless he shows that he took the proper and necessary precautions to have his seamen examined medically before leaving the United Kingdom?

In cases where, as in some of the regular lines, the same men serve for years in one employ, their characters are well known, and a medical examination is unnecessary and would not be enforced; but where seamen are picked up promiscuously, as they are in the majority of cases, the ship-owner may reasonably be required to ascertain, before shipping his crew, that they are fairly sound.

Thus was attention attracted simultaneously in the United States in England, and in the Levant, to the unseaworthy condition of seamen, and the same conclusion arrived at as to the necessity for

legislative interference in this direction in the interests as well of commerce as of the sailor himself. The added experience of the past two years in this hospital only strengthens the conviction that, not until an improved physical standard of the men themselves, to whom are intrusted the care and safety of the ship, is achieved by some such measure as a compulsory medical inspection before shipping, will the efforts of Mr. Plimsoll and others, to lessen the dangers of those who go down to the sea in ships and do business upon the great waters, be complete. For, as *The Lancet* justly observes, the Plimsollian agitators have failed to recognize that no vessel, however seaworthy in herself, can be counted as seaworthy, in the proper acceptance of the term, unless she is manned by a healthy and competent crew.

We gather promise for the future, however, from the language of the Supervising Surgeon in his last annual report. Speaking with the circumspect deliberation of official authority, and after three years' observation of the number of hospital patients who obviously had never been physically fit for the duties, the exposures, and the privations of a seafaring life—"a class of patients who alternate between the hospital and the forecastle, with a decided preponderance toward the former"—he suggests for consideration the question "whether it may not be found advisable to forbid, by statute, hospital relief at the expense of the fund in any case where it is evident that the applicant was physically unfit for sea-life when shipped."

It may be doubted if more than this be practicable at the present time; for it is asserted that a compulsory and universal medical examination of seamen, before signing articles, would only hamper the shipping interest, which even now, in the absence of any such restriction, complains of the scarcity of able-bodied and competent men. Dr. WOODWORTH's suggestion, to which there can be no objection—and which, indeed, he is entitled to urge as the administrator and supervisory chief of the seaman's own service—would, if adopted, pave the way for a more comprehensive measure, and, by its indirect influence, do much to elevate the physical standard of seamen.

To what extent such action would work good may be inferred from an examination of the medical and surgical statistics of his Service, which shows that upwards of twenty per cent. of the whole number of cases applying for relief are of purely preventable disease; and the experience of every medical officer consulted goes to show that, of this number, by far the largest proportion occur among individuals who would have been advised by a physician to adopt some other avocation than that of a sailor.

One disease, consumption, stands prominently forth in the list as depleting the merchant marine, and hastening a fatal result with those so afflicted by reason of their following the sea. Not that sea-life in itself is believed to aggravate this disease; but the conditions of such life in the forecandle, with its utter want of hygienic observances, undoubtedly does. The known want of thrift, the hardships endured at sea, together with the excesses of sailors while on shore, soon drive those of weak or diseased lungs into the hospital, where they stay their allotted time and perhaps recover sufficiently to reship again for a short time, and then spend months again in another hospital; many chronic cases spending in this way four months in each year in some hospital, converting it into a boarding-house at a slight expense to themselves and with manifest injustice to those contributors to the hospital fund who only claim its benefits in cases of emergency.

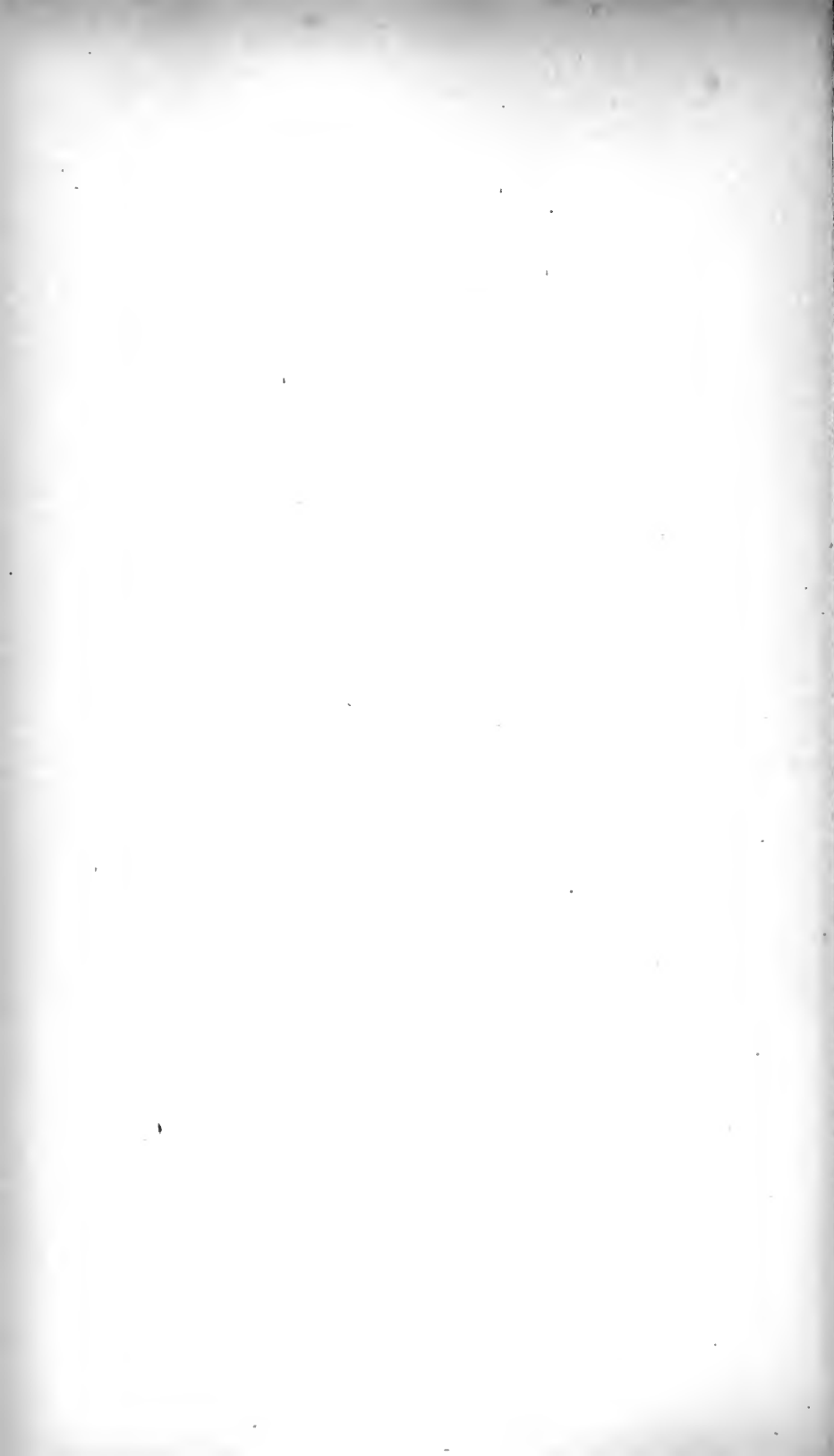
The average duration of treatment of consumptive cases in hospital is about four months, ranging from sixty days to eight months; and the percentage of deaths based upon the whole mortality of hospitals is about twenty-four.

It is believed that the present allowance of time in hospital is sufficient, as any person requiring more than eight months' hospital treatment at one time is surely unfit to be a sailor. Yet at present there is nothing to prevent one who has just completed his eight months' treatment for some incurable disease from reshipping direct from the hospital, which he frequently does, provided he is barely able to stand up; if not, he is sometimes gotten drunk, carried aboard, and "dumped" into the forecandle, the captain being informed that he is a good man, "only a little drunk." It not unfrequently occurs that such a case, suffering from aneurism or heart disease, aggravated by his exposures and enfeebled by his excesses, may die suddenly on some slight exertion. An instance of this kind has occurred during the preparation of this paper. Seaman David O'Brien shipped on the schooner T— C— about ten o'clock in the morning; at about three o'clock in the afternoon of the same day, while assisting in hauling down the jib, when the vessel was nearly opposite this hospital, he fell suddenly on the deck and expired. The coronor's inquest elicited, among other things, the fact that this man had only recently been discharged from the Chelsea Marine Hospital; had come to New York and shipped on board the vessel. The *post mortem* revealed, as the cause of death, an aneurism of the arch of the aorta. This sailor had received his "advance wages," which were a total loss to the owners as were also the funeral expenses, besides detaining the schooner

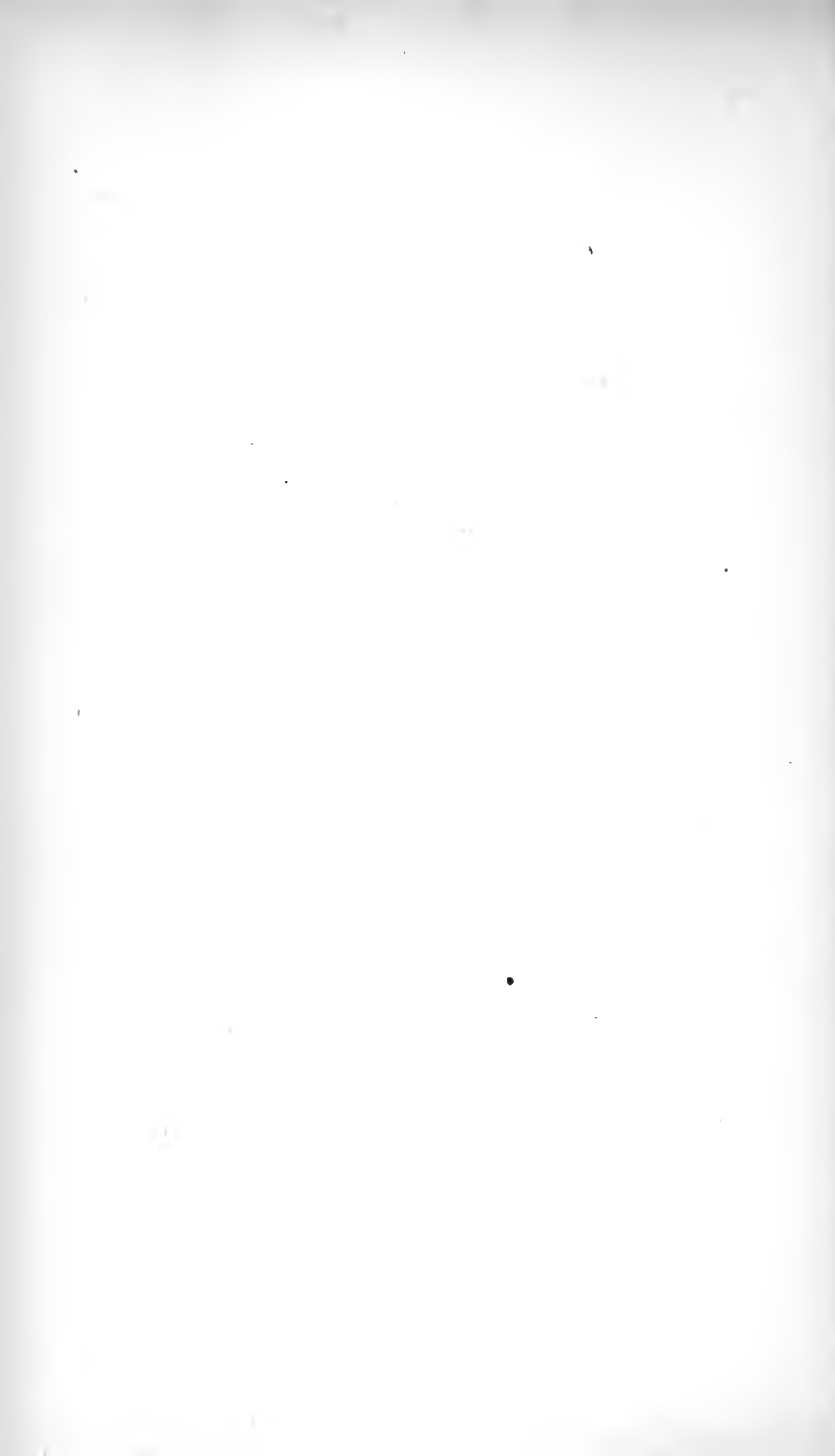
twenty-four hours to ship another man, with no assurance that a similar accident might not happen again in the absence of medical inspection.

So much has been said and written of syphilis as a purely preventable disease, that it need only be considered here in its economic aspect. When a sailor ships, he contracts to give his personal services for a consideration, and though he may not enter into a written contract to avoid doing anything which may impair the value of his services, there is, nevertheless, an implied obligation to that effect. Therefore, when he becomes diseased by his own act, he violates his obligation, renders himself unworthy of sympathy, nor is he in equity entitled to hospital relief. But although his captain may discharge him and decline to pay for time thus lost, by law he still has access to the hospital, or can, under existing circumstances, reship, which he frequently does, until his disease is again detected, he is discharged again, and the same thing repeated indefinitely. Thus is the evil permitted to thrive, and the patient, so long as he can obtain employment so readily, continues his calling with a progressive disease making inroads upon his system, until at last, he is completely broken down and becomes an almost permanent inmate in hospital.

If patients suffering from these two diseases alone could be eliminated from those entitled to relief from the fund, as suggested by the Supervising Surgeon, a vast stride would be made in the improvement of the physical standard of the merchant marine. For it cannot be doubted that when owners of vessels come to realize, as they soon would, that the shipment of a hospital patient, instead of an "A B seaman," meant the payment by the ship of expenses incurred in his treatment, they would not be slow in seeking the assistance of the inspecting surgeon. And when it was found that seaworthy sailors meant shorter and more economical voyages and less risk to property and life, the hands of those who are engaged in the work of elevating the physical, social, and moral condition of the toilers of the sea would be strengthened by those now interested only in the pecuniary profit.



SAILORS AND THEIR DISEASES IN CHELSEA
HOSPITAL.



SAILORS AND THEIR DISEASES IN CHELSEA HOSPITAL.

BY A. B. BANCROFT, M. D.,

Surgeon-in-charge U. S. Marine Hospital, (Chelsea,) Port of Boston, Mass.

I PROPOSE in this paper to limit myself to the consideration of the diseases and injuries to which sailors are most exposed, as shown by the records of this hospital during the past five years.

From what we know of *Bright's disease*, and the causes which produce it, we should expect to find it a not unfrequent malady among seafaring men, whose business exposes them to storms and, in a word, to all changes of the weather, especially to those of a sudden and severe character; for it appears that, in very high latitudes where the cold is continuously severe, or in the tropics where the heat is continuously oppressive, this affection of the kidneys is far less common than in the temperate zones. Of the truth of this I think there can be no doubt, and for its solution we must look to the sudden and severe changes of weather which prevail in these latter regions.

The disease presents two forms, acute and chronic. The first, although less dangerous than the last, and usually terminating in recovery, is, with sailors, often converted into a serious affection, because its early symptoms are, from ignorance, disregarded, or, if recognized, fail to obtain at sea the appropriate treatment necessary to prevent the development of structural lesions. In private practice, a patient who should apply to his physician with the following symptoms, viz., chills, pain in lumbar regions, nausea, hot skin and scanty renal secretion with albumen, dyspepsia, and a puffiness of the features, would get warm or hot-air baths, dry cupping to lumbar region, saline purgatives, appropriate diuretics, flannels, and rest in bed. A sailor, at sea, with the same symptoms, if not compelled by an inhuman master or stress of weather to work on, might get a hard bed and a dose of salts; but these would hardly suffice to bring him out of his attack, or rescue him from the development of those organic changes which constitute the grave form of the disease.

The duration of treatment varies largely in both forms, depending so much as it does on the more or less debilitated condition of the patient when he first presents himself to our notice. A freer exhibi-

tion of quinine and iron, and a more generous diet of albuminous food, are necessary in this class of cases, as compared with those in private practice, or even in general hospitals. Death from non-complicated acute Bright's disease is very rare, the fatal result being usually caused by the supervention of pneumonia, peritonitis, &c., upon the original disease, and occasionally by uremic poisoning. In the chronic form the mortality rises as high as three per cent.

Enteric fever is a disease of seafaring men, for they are exposed to the causes which produce it. In the first place, youth is almost an essential condition of the development of this disease, and two-thirds of our hospital patients are under thirty years of age. Change of residence—from the quiet routine of home to the new and often depressing influences of ship-life—brings a change in all their habits, and coarse food, bad water, and foul air from ships' holds, complete the conditions. A physician in ordinary practice, when called to a case of this fever in its early stage, would enjoin upon his patient the necessity of keeping in bed, so that his strength could be husbanded to carry him through a disease—perhaps of a severe type and of unknown duration. Having attained this object, and regulated his patient's food and surroundings, he feels that he has done all that can be, in this incipient stage of the disease, and awaits further developments.

Rarely have we the privilege of treating a case of enteric fever, until it has run through one-third or one-half its course. The subjects of typhoid enter the hospital exhausted by muscular efforts which they are ill able to make, with a diarrhœa made more unmanageable by previous purgation, and a nervous system prostrated and worried.

We start, then, as is evident, in the treatment of our typhoid-fever patients with the odds against us.

Milk is the only nourishment allowed until the patient's condition clearly demands a change. Stimulants are required at an earlier period than in other cases; also quinine, in small doses. Sleep is invited by gentle anodynes.

The result of our cases of this affection is far more satisfactory than one would conclude when he considers the unfavorable circumstances under which treatment is assumed—the mortality being from seven to eight per cent.

The exposure of the sailor to changeable and wet weather for hours, without thought or time to shift his damp clothes, is the principal exciting cause of *rheumatism*.

Some sailors, as well as landsmen, are more liable than others to rheu-

matic affection of the joints, from hereditary predisposition. Unlike typhoid fever, one attack not only does not protect an individual from a succeeding one, but, in truth, predisposes to it. Like Bright's disease, it prevails most in temperate climates, and for the same reason. A description of a disease so well known, cannot be necessary. It is mostly to be dreaded on account of its tendency to affect the heart and its membranes. As its invasion is stealthy and often without warning, a daily examination of the cardiac region is imperative.

The chronic form is characterized by a much less rapid inflammatory course, but by involving the fibro-serous and synovial textures of the joints, and sometimes producing in them synovial effusion, cretaceous deposits and ankylosis, it frequently results in disability for sea-life.

As soon as a patient with acute rheumatism arrives in hospital his urine is tested for acidity, which in almost every case is present in an abnormal degree. He is put into blankets, a solution of the bicarbonate and nitrate of potassa and opiates *pro re nata* are administered. Warm or hot fomentations or cotton batting are applied, covered by oil-silk. Stimulating liniments are never employed. The solution of potassa is continued until the reaction of the urine is changed. The treatment is completed by quinine, in moderate doses, and iron, always rendered necessary by the marked anæmic condition of our rheumatic patients.

The treatment of the chronic form is mostly by iodide of potassium. Liniments to joints are not only admissible but useful. Tincture of iodine, the galvanic battery, dry cupping, and warm baths are also important agents in the treatment of this disease; and the last but one we have found especially efficacious, and regard it as a remedy much less in use than its importance warrants.

Cases of *malarial diseases*, chiefly of the intermittent type, enter the hospital quite frequently, arriving from Southern ports. The germ of malarial poison is sometimes in repose for months, and, as is well known, persons who get the disease in a locality where it is endemic may journey into another and far-off country before the effects of the poison show themselves.

Remittent fever is rare in this hospital, but we have had a few cases of the *pernicious intermittent*, and they are strongly suggestive of some cases of *coup de soleil*. The spleen is the viscus found to be first affected in malarial diseases, being much enlarged, soft in texture, and afterwards becoming solidified, resembling hepatization. Similar changes may occur in the liver, except the rapid increase and decrease in size which mark the spleen.

Sailors from northern latitudes, on their arrival in paludal districts,

are prone to take the disease, especially if their constitutions have been impaired by previous debilitating causes.

If the patient suffering from ague arrives in hospital twelve hours before the expected return of a paroxysm, eight or ten grains of sulphate of quinine is given him, repeated once in six or eight hours for the next twenty-four, and continued daily, each dose diminished by one grain from that of the preceding day. If in eight days the animal temperature is not normal, and convalescence fully established, the quinine, in two-grain doses, three times a day, is continued, until the desired result is obtained.

If the patient enters the hospital quite sick and debilitated, an hour or so before the anticipated chill the salt in a solution containing four to six grains is introduced hypodermically. This intercepts the paroxysm and gives time to control the disease by the usual mode of administering the medicine. The hypodermic injection is especially valuable in those cases of the pernicious type where the administration of the medicine by the mouth, by reason of the extreme comatose condition of the patient, is not practicable. We have seen some surprising recoveries from this mode of administration, when the state of the patient seemed desperate.

Scurvy, although generally regarded as a disease limited to sailors, is also an army disease. It is more complex than simple, and is caused by the want of fresh succulent vegetables, and of physical comforts, such as pure air, strong sunlight, good water, clean skin, and sufficient clothing. Dysentery and malarial poison, unquestionably predispose to the disease.

Scurvy patients, as they appear at the hospital, usually present most or all of the following symptoms—pale complexion, lips devoid of healthy color, depression of spirits, respiration accelerated upon exertion, offensive breath, spongy and bleeding gums, œdematous legs, livid spots and broad bruised-like patches on the surface, and hemorrhage from nose or bowels.

Our scurvy patients get lemon juice freely, potatoes, cabbage, raw onions, milk, meats rarely cooked, and some preparation of iron and quinine.

Fissure of the anus is a painful and not uncommon affection among sailors, sometimes connected with ulcers, and often caused mechanically by difficult defecation, as in obstinate constipation, venereal infection, &c. The pain attending the act of defecation is quite severe, and is sometimes prolonged from one act to the next. There is, in consequence, often considerable constitutional disturbance. In fact, one

who has not experienced in his own person, or had a patient afflicted with this apparently trifling lesion, cannot realize the great suffering it produces. Fissure is often mistaken for hæmorrhoids, although the two affections are distinct but sometimes coexist. "Piles" is the invariable name for fissure among sailors, and often among landmen.

Our treatment is simple. The bowels are first emptied the day before the operation. A sponge with a string attached, and large enough to fill the rectum, is passed up above the fissures, for there are generally two or more. The sponge cleans the mucous membrane as it is pushed up, and likewise obstructs the passage of any fæces during the operation. A dilator or speculum is now introduced, and, by gently stretching the mucous membrane, reveals the lesion. Several superficial scarifications lengthwise of the fissure constitute the operation. The next dejection, which is allowed to occur the second or third day, is natural and painless to the great surprise and joy of the patient.

The sailor, by exposure to heat and cold, by wearing damp clothes, by breathing impure air—especially during sleep—by his criminal and habitual neglect of ablution, by a diet too limited as to the number or variety of articles which compose it, and, lastly, by his exhausting excesses in port, becomes a ready victim to *pulmonary consumption*. Of the deaths caused by all diseases treated in this hospital, a mortality of over fifteen per cent., is chargeable to this cause alone. The suggestion of the Supervising Surgeon that seamen be submitted to a medical inspection before shipping and those predisposed to this and kindred diseases be rejected, would, if carried out, largely reduce this preponderance. But much may also be done by improved hygienic conditions afloat.

If sailors do not enter the hospital with *erysipelas* already formed, they do with diseases or conditions of the system predisposing to it. It usually follows operations, not unfrequently the opening of abscesses.^(a) Much may be done by strict cleanliness, and thorough ventilation, to prevent its appearance and spread through a hospital. Its precursors are chills, coated tongue, bad taste in mouth, nausea, headache, and quick pulse. A patient with these symptoms gets blue mass, and, five or six hours after, a saline purgative. We then commence with the tincture of muriate of iron in twenty-drop doses, once in an hour or two through the day, or in three hours during the night. We are convinced that the affection is much more amenable to this remedy when thus frequently given, than when administered, as is the usual

^a Gangrene also follows the opening of abscesses. It is arrested by the application of nitric acid.

custom, three or four times a day. The only external applications used are tincture of iodine and flax-seed meal poultices.

Aneurisms are relatively more common among sailors than landmen. Dr. Bowditch states that the records of the Massachusetts General Hospital show that, from 1821 to 1870, inclusive, there have been eighteen popliteal, five subclavian, four femoral, and one doubtful case of aneurism among sailors.

In private practice aneurismal tumors are found most frequently among the advanced in life; a fact which suggests that this may be owing to fatty degeneration of the blood vessels and their consequent inability to resist the force of the blood, or other causes tending to strain them—causes finding a parallel among sailors in their violent and prolonged muscular efforts in the rigging, at the capstan, the helm, and the pumps, or in rowing and swimming often for life.

Frostbite is common in our wards, more frequently among the colored sailors. It is often due not so much to the degree of cold as to the conditions of exposure thereto. Persons in good health would resist successfully a temperature which seriously affects a crew deprived of substantial food and comforts, or weakened by mental depression and a prolonged struggle with the elements.

The colored seamen not unfrequently arrive on our northern coasts in midwinter very scantily clothed, and if the temperature falls rapidly the result of course is frostbitten digital and pedal extremities.

The destruction of the phalanges is quite common. Meddlesome surgery in these cases is bad; soothing appliances, poultices, application of the tincture of iodine, rest, and a generous diet constitute the treatment. Amputation is resorted to reluctantly, nature being encouraged to separate the diseased from the healthy part herself, lest gangrene should be developed anew.

It is rare to find a sailor in this hospital who has not had *syphilis* or *gonorrhœa*. The sexual passions, ungratified during a long voyage, urge him as soon as he reaches port into excesses which, combined with intemperance and filth, often result in contamination. Seldom taking a bath, and employing local ablution superficially, if at all, it would be strange if he emerged from his debauch without contracting disease.

Syphilis, contrary to the opinion of early writers, invades all the organs and tissues of the body which are vascular, and produces results which are highly destructive. The life of the victim is not only shortened, but made burdensome and wretched. Yet this statement

will not apply to all cases, for there are some persons who, having contracted the disease, experience only in consequence a slight malaise, with, perhaps, a moderate enlargement of the lymphatic glands.

We have also noticed that the interval between the healing of the syphilitic ulcer and what are called *secondary affections*, varies much in different individuals. I know of nothing that will explain this dissimilarity in different patients unless it may be the superior vigor of constitution which some possess over others, and which resists and modifies the syphilitic virus.

Sailors will run all risks rather than forego the gratification of the sexual passion. The often disgusting forms of syphilitic disease of the skin, and the painful complications of the same affection when it attacks the bones, eyes, brain, and other vital organs, are familiar to them; yet to all these forms of disease, painful and destructive as they know them to be, they will expose themselves for a temporary gratification.

In the post-mortem examinations made at this hospital, we have had repeated proofs of the ravages made by this poison in the brain, lungs, heart, and liver, in the shape of "ragged-looking abscesses, with imperfectly-elaborated contents, softening and pulpy degeneration, and tubercular or gummy deposits."

We do not record a case of tertiary syphilis as cured, but only relieved or much improved. It is extremely difficult, as before intimated, to eradicate this poison from the system so that it will not reappear in relapses, often produced by the most trifling causes—unless, indeed, these relapses are the legitimate operation of the disease itself.

But it should be borne in mind that one possessed of a good constitution, can, by temperance and a vigorous training founded on a faithful adherence to the laws of health, do a great deal to counteract the pernicious effects of secondary and tertiary syphilis in his own person.

In its simple form gonorrhœa is a harmless disease, but when it involves other structures, its complications give much trouble, pain to the patient, and anxiety to the medical attendant. Without stopping to consider phymosis and paraphymosis, with their accompanying œdema, more or less painful affections and often requiring surgical interference, we come to a much more important affection, *organic stricture of the urethra*, produced by frequent attacks of gonorrhœa or neglected gleet.

By the inflammatory process which results from these attacks, plastic material is deposited in and about the urethra, by which its calibre is diminished. A short, violent attack is less liable to lay the founda-

tion of an organic lesion than a mild, but protracted, one. The period of time that elapses between the commencement of the gonorrhœal attack and the administration of remedies, which in the case of sailors is often prolonged, favors the development of organic stricture. When the calibre of the urethra is so far contracted by the deposit of plastic material as to be nearly impermeable, its dilatation is attempted by bougies. This may be the work of weeks. The smallest-sized capillary bougie sometimes fails to enter, even after prolonged, delicate, and varied manipulation. Persevering attempts conducted by a gentle sleight of hand, often sorely vexing the surgeon, generally, however, prove successful, especially if assisted by an injection into the urethra of olive oil, and compressing the same just behind the meatus when the syringe is being withdrawn, so the oil cannot escape. This greatly facilitates the passage of the instrument by the double effect of lubrication and dilatation.

Cystitis is one of the most frequent and serious complications of gonorrhœa, and is caused by the transmission of the virus to the interior of the bladder, and also mechanically by stricture of the urethra. In the last condition, the urine, by being retained in the viscus, becomes alkaline, decomposed, and offensive, often mixed with fibrinous shreds and muco-purulent matter. This disease, which is almost always seen in the wards of the hospital in its chronic form, is treated by frequent warm hip baths, mucilaginous drinks, decoctions of uva ursi, and hops, anodynes, belladonna suppositories, and weak injections into the bladder of acetate of lead, carbolic, and nitric acids.

We have found chronic gonorrhœal cystitis more obstinate and dangerous than some authors would lead us to suppose.

Enlargement of the prostate is another concomitant of gonorrhœa, of a more dangerous character than the preceding, but far less frequent.

Perineal or scrotal fistulæ are among the indirect results of gonorrhœal inflammation, arising from stricture of the urethra, or from forcible attempts to introduce instruments. The laceration of the mucous membrane introduces the urine into the cellular tissue, where it irritates, ulcerates, and suppurates through the integuments.

We have also had cases of *suburethral abscess* as one of the complications of gonorrhœa. Early incision is required to discharge the pus and release the urethra.

As it is certain that the seafaring man will continue to gratify recklessly the sexual appetite, in spite of the restraints of a higher civilization and deeper religious convictions, it is proper to inquire if the risks he incurs by so doing cannot be diminished. The number of

able-bodied sailors is much less than is generally supposed. Possibly one-third are disabled, many permanently so, by reason of syphilis, gonorrhœa, and its complications. If prostitution could be regulated by law—if systematic and periodical examination of public women could be enforced, and those found to be diseased restrained from all communication—syphilis might be diminished, and its enormous evils abated.

But if public sentiment is firmly arrayed against any enactment of this kind, an important advance might be made, if there should be one or more surgeons at each important port, whose duty it was to examine all those who propose to ship in the merchant-marine service. Those who are disabled by syphilitic or other disease should be rejected, and shipmasters and owners thus be relieved of much fraud and expense, the Marine-Hospital Service of an unnecessary burden, and society protected from a great loss.

An experienced and intelligent shipmaster in Boston, Captain Spooner, states that, among the obstacles in the way of the sailor's moral elevation, are the want of ties of kindred; the vicious examples and lack of early moral training; the migratory habits, annulling all love of home, and changing the customs, morals, and influences by which he is surrounded; his inveterate suspicion (*a*) of all who would lend him a helping hand, most strongly of his employers and those in authority over him; and the gipsy, vagabond tendencies begotten of his avocation.

Before the condition of the sailor can be improved, it is absolutely necessary, he maintains, that the crimp, sailor-runner, or land-shark, should be suppressed; advance wages abolished; laws passed and enforced in every seaport to prevent desertion, and magisterial and consular aid invoked in the same direction; respectable and comfortable boarding houses established and maintained in every commercial city, and that all others be discountenanced or suppressed.

As an incentive to faithful duty, Captain Spooner recommends that ship-owners stipulate with the sailor who ships at the running wages to pay him, if he perform his duty well, an addition of, say ten per cent. And where vessels have been in condition or places of danger, and the sailor has been faithful in the emergency, some recognition in the shape of a medal or compensation in money would tend to good by increasing his zeal and interest in the service. He is forced, however, to say that several instances have come to his knowledge where the underwriters have been fruitlessly solicited to reward sailors who have done

a Doubtful.—A. B. B.

signal service in cases of great peril, saving and protecting property. To reward such service he calls a good investment. If individuals who have done meritorious services are recognized and rewarded in the army and navy, and among politicians, policemen, postmen, firemen, conductors, engineers, and others, why should the sailor be exempt?

In conclusion, Captain Spooner contends that schools and school ships should be provided for the education and training of boys with seaward propensities, and a system of compulsory apprenticeship for the mercantile marine should be established by law.

THE SERVICE ON CAPE COD.



THE SERVICE ON CAPE COD.

BY PETER PINEO, M. D.,

Surgeon-in-charge Marine-Hospital Patients, Hyannis, Mass.

CAPE COD is a promontory which extends from the southeastern coast of Massachusetts some sixty-five miles into the Atlantic ocean, having an average width of about four miles, and more than one hundred and fifty miles of coast-line, with a population of over forty thousand, the majority of whom are seamen, and almost every one of whom expects to be the commander of a ship. Six hundred sail of vessels are owned and hail from the different ports in the district.

The character of the seamen on this Cape, compared with the class of sailors, hailing from all nations, usually found about our principal seaports, is of a high order. Certain diseases most common with seamen are comparatively rare among the Cape men. The reasons for their superior condition and more provident habits may be found in the home influences surrounding them, and which they manage to preserve.

At whatever port on the Atlantic coast these seamen may arrive from a long voyage, whether sick or well, they proceed forthwith, if possible, to their homes, not waiting to spend their money in drinking and riotous living, but taking their hard earnings to their families, there to enjoy a brief respite and the blessings of home life—

“His clane hearth-stane, his thrifty wife’s smile,
The lisping infant prattling on his knee,
Do a’ his weary carking cares beguile,
An’ make him quite forget his labor and his toil.”

The fostering of these domestic virtues, with their incentives to temperance, industry, and laudable ambition, is alike important to the sailor and to the welfare of the country, and a direct result is seen in the better physique, the higher reputation for seamanship, and the larger proportion of officers among the men who hail from a region which has not inaptly been called “the nursery of American seamen.”

The General Government, however, has shown herself something of a stepmother in her care, or want of care, of this nursery. There are nine ports on the Cape where application may be made by seamen for hospital relief, but at no one of them is there anything like suitable provision for their care; nor can there be without some small public

outlay; for want of which, although 6,618 days' hospital relief was furnished during the last fiscal year, many sailors who were entitled to assistance from the marine-hospital fund, and who would have preferred being treated in the vicinity of their own home ports, were obliged to go to Chelsea or New York for treatment.

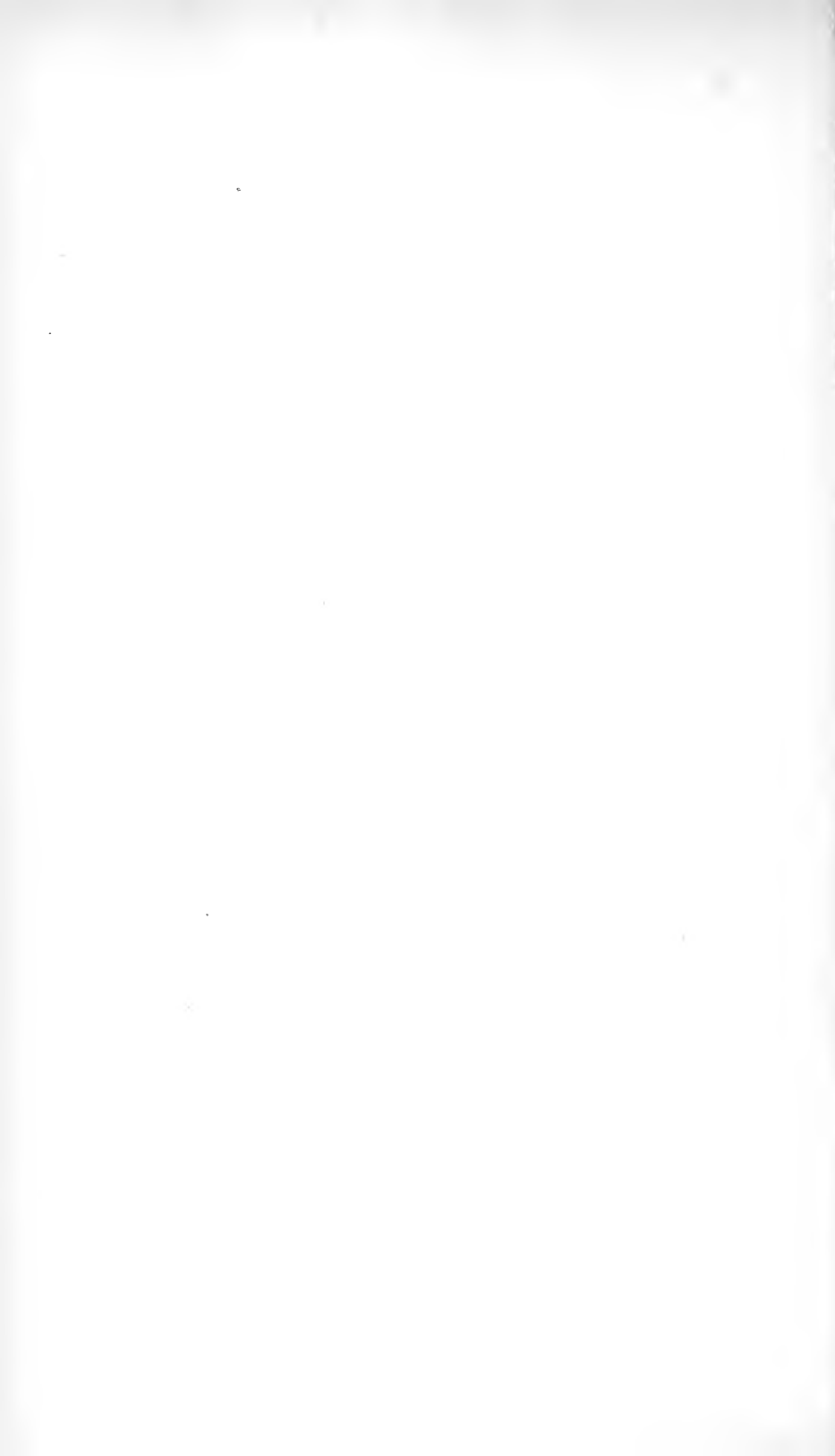
Many cases are put on shore, sick, from the numerous coasting vessels which pass through Vineyard Sound and hug the coast on the south shore of the Cape; and in winter shipwrecked and frostbitten sailors are often cast on shore in numbers far beyond the capacity of the hospital accommodations at any of the ports.

The Service has never owned a hospital building in the district; but relief has been furnished in small private hospitals, totally inadequate to the emergencies, and at best with indifferent accommodations.

The establishment by the Government of a suitable hospital on the pavilion plan, at some central point, and of capacity sufficient to accommodate the entire district, would not involve an expenditure of over \$15,000. The medical officer of the district might have his headquarters at this hospital, and transfer to it patients from the private hospitals at other ports, when, in his judgment, they would thus be better cared for, or the interests of the Service be subserved by such transfer. Its position should be so central that ready access could be had to it, not only by the patients themselves, but by their friends and families.

Such a measure would satisfy a great want, and do simple justice to a most deserving portion of the mercantile marine, on whom, in time of emergency, the country must largely depend for the manning and commanding of gunboats and transports, and recruiting our Navy generally.

THE FREEDMAN AND THE SERVICE ON
THE OHIO.



THE FREEDMAN AND THE SERVICE ON THE OHIO.

BY P. H. BAILHACHE, M. D.,

Surgeon United States Marine-Hospital Service, Louisville, Ky.

PROBABLY no class of men are more improvident than those who seek employment upon the water—whether it be the sailor upon the high seas, or the less pretentious boatman upon our inland waters. This, taken with the well-known fact that the negro has always been a dependent, places the freedman in a position where the benefits arising from the United States Marine-Hospital Service are prominently manifest, and where the Service itself cannot but be commended by all who have given its workings a thoughtful consideration. Before the emancipation of the slaves in the Southern States the few who were employed upon our river boats had their masters to look to for protection and assistance; but now that they are thrown upon their own resources, and especially since the number seeking employment upon our water-craft has increased while the demand for such labor has fallen off, (owing to the increased number of railroads,) their only recourse, in case of sickness or desertion, is the kindly provision of the Government through its Marine-Hospital Service.

Until after the reopening of the marine hospital at the port of Louisville—since the Civil War—the admission of a freedman to the city hospital was not a possible thing to be accomplished; but now black and white are alike admitted and the treatment of each is the same. This departure from the old-time rule is the result of no Government interference, but merely the natural sequence of events following the admission of all classes to the marine hospital at this port. The same result doubtless obtains at other southern ports where marine hospitals are established.

The employment of freedmen upon water-craft on the Ohio river is nearly one-third in excess of that of whites, while the admission to hospital of each class is about equal. For example, at the port of Louisville, which is a fair index to the others, there were treated in the marine hospital during the last fiscal year 236 whites and 258 freedmen—a difference of only 22. It has been suggested that the reason for this difference lies in the difficulty which freedmen experience in obtaining the necessary papers from their boats to enable them to

enter hospital—no one admitting for a moment that the negro is more healthy or hardy than the white. But upon investigation I am led to believe that the true reason for this disproportion in favor of the freedmen can be found in the fact that the lighter and less exposed duties of cabin boys, waiters, and porters, which in the main fall upon this class, render them less liable to the non-preventable diseases incident to river employment, and that freedmen as well as whites are equally supplied with masters' certificates upon application. It is true, however, that in some instances a brutal mate—through whom application for master's certificate is generally made—will indiscriminately refuse to obtain one, and will put sick men, white or black, ashore at the first landing, whether there be a marine hospital at the port or not.

The workings of the Service upon the Ohio and other inland rivers are not as perfect as is desirable, for the reason that the *Regulations* governing them are not always applicable. The master's certificate, as an evidence of the payment of hospital dues, is almost valueless. No method has yet been devised by which officers of the Service can satisfy themselves of the truth of the statement contained therein, there being no list of employés furnished the customs officer by the master of the boat, nor can there always be. The crew of a steamboat plying up and down the Ohio river may be changed at every port between Pittsburg and Cairo. Unlike the crew of a sea-going vessel, which is employed by the month or longer period, the deck-hand, or "rouster," may be employed by the day or hour. It is, therefore, impracticable for the master of the boat to comply with paragraphs 6 and 7 of the *Regulations*, and, consequently, impossible for the customs officer or surgeon to verify the master's certificate, (Par. 27.) Nine-tenths of all master's certificates presented by applicants for relief show but a few days' or weeks' service on the boat from which it was obtained; but the applicant will, in nearly all cases, make oath that he has served continuously for years upon the river, and that each boat has collected the full amount of hospital tax for the *month*, though he may have been on the vessel only a few days. Not infrequently he pays it twice over on the same boat, if he happens to ship on her more than once during the same month. In other words, the men change from boat to boat almost daily, and hospital dues are collected from them by the master every time they are paid off.

Requiring the master of the boat to sign the master's certificate, if literally complied with, would work hardship to suffering river men; and the evidence furnished by other officers of the boat, or even the wharf master, has frequently to be taken. Unlike ocean steamers,

our river-craft barely touch at a landing, and are off again, perhaps leaving a barrel of salt, perhaps a sick freedman. If the latter, ten to one, he has been put ashore without a complete certificate, perhaps with none at all; and, with no home but the river, he would die upon the landing were such irregularities counted against him.

So far as I am able to judge, the collection of hospital dues is attempted, and that imperfectly, at very few of the ports on the Ohio river. To remedy this defect, and secure a more thorough, uniform, and systematic collection, I would recommend that customs officers be authorized and required to examine the "port book" of all boats applying for registration or enrolment. This is now done at the port of Evansville, Indiana, with the most gratifying results.

In referring to the payment of hospital dues by freedmen and others, I neglected to state in the proper place that the crews of a few of the larger boats are employed by the month, and pay their dues monthly, and that one or two boats collect no dues from their crews, but pay it for them. With these exceptions, the condition of things is as I have stated above.

The ports on the Ohio river at which medical and surgical relief is afforded to marines are: Pittsburg, Pa.; Cincinnati, Ohio; Louisville, Ky.; Evansville, Ind.; and Cairo, Ill. At the first-named place the old United States marine-hospital building has been closed and a new one is soon to be built; in the meantime, patients are cared for by contract, Dr. George Purviance surgeon-in-charge. At Cincinnati relief is furnished in the Good Samaritan Hospital, a substantial building, formerly a United States marine hospital, and a corps of experienced medical officers is in attendance. At Louisville an old United States marine hospital, much out of repair, is in use, Dr. Thomas J. Griffiths surgeon-in-charge. At Evansville the building is also an old United States marine hospital, the present owners of which provide for the marines, furnishing everything in a most satisfactory manner; the medical care is under the immediate charge of a corps of officers connected with a neighboring college. At Cairo the marines are well cared for in a very neat hospital, under Dr. Horace Wardner, the medical officer in charge.

All these hospitals are under the direct supervision of the Service, and every freedman receives the same care and the same quality of food that is bestowed upon the white marine; but separate wards and dining-rooms are provided for each class. There is probably no other employment wherein class distinctions are less thought of than upon our river steamers. Deck-hands of all colors and nationalities work,

eat, and sleep together, regardless of exteriors, and their wages are the same.^(a)

Like similar "professions" this has its own vernacular to express its cuisine, and, in this instance, the class of boat which furnishes it. For instance, on the large, first-class steamers, where everything is liberally supplied, "side-wheel duff" fully expresses to the mind of the average "rouster" the condition of things gastronomical; the next grade is known as the "stern-wheel duff," where scrambled eggs, bread, fish, and scraps from the officers' tables, &c., form a heterogeneous compound; the lowest grade is the "pigeon-wheel duff," and all the grades more or less shade off into each other, depending on the amount of business the boats are doing. There is no complaint as to the fare, which is generally substantial and abundant.

No less expressive is the name given the resting place of the "rouster" during his few minutes of repose day or night, for no accommodations are furnished by the boats. If it is cold weather, "the St. Charles" is sought after, and that is under the boilers; if it is summer, "on the barricades" is the cry, and each one seeks a resting place upon the softest freight he can find—lucky the one who can secure a sack of grain or a bale of cotton for his bed.^(b)

The working tour of a marine embraces the entire twenty-four hours of the day and night; and when it is known that Ohio-river boats, on an average, make landings to take on or discharge freight every half hour in the twenty-four, the wonder is that these men can live on year after year with such irregular habits.

But this is not all. Like the sailor, our river men, white and black, are their own worst enemies. They are not only improvident; they are debauched—intemperate and licentious. Nearly all their wages are charged up against them at the bar, and if, by chance, they get a little money ahead, they leave their boat at the first convenient port to satisfy their licentious desires, nor do they hesitate to carry with them the pocket-book or extra clothing of a more steady comrade. Of course, there are some honorable exceptions to this wholesale charge, but they are exceptions.

The causes which have led to this depravity are manifold: a precarious life upon the water, subject to the caprice of their master, the mate; entire lack of moral or religious training or restraint; working at all hours, day or night, Sunday and weekday alike; no hope for anything beyond their daily grog or a chance to shirk the work imposed upon them. How can anything better be expected from them?

^a Wages range from 85 cents to \$1.25 per day, or \$25 to \$35 per month.

^b The transportation inland of contagious and epidemic diseases by this means will be treated of in a future report.

Naturally enough, with such surroundings, the diseases specially incident to the marine, are of a specific and preventable character. At the port of Louisville, there were treated in hospital, during the past fiscal year, 258 freedmen and 236 whites. Of these, 45 whites and 57 freedmen suffered from syphilis or its sequelæ. At the Cincinnati hospital, 159 freedmen were furnished relief, 52 of whom were syphilitic. At Cairo, 11 per cent. of all cases treated were syphilitic; and so elsewhere. The Service has grappled with this evil, and done all that it can do under the present legislation. There is but one remedy, and that hardly a practicable one upon our rivers, however it may be upon the high seas: Require a physical examination of all sailors before shipping. To elaborate the idea would require more space than I can give in this paper; but with some such authority, the Service would soon rid itself of unseaworthy seamen, and the hospitals be relieved of one-fourth of their inmates.

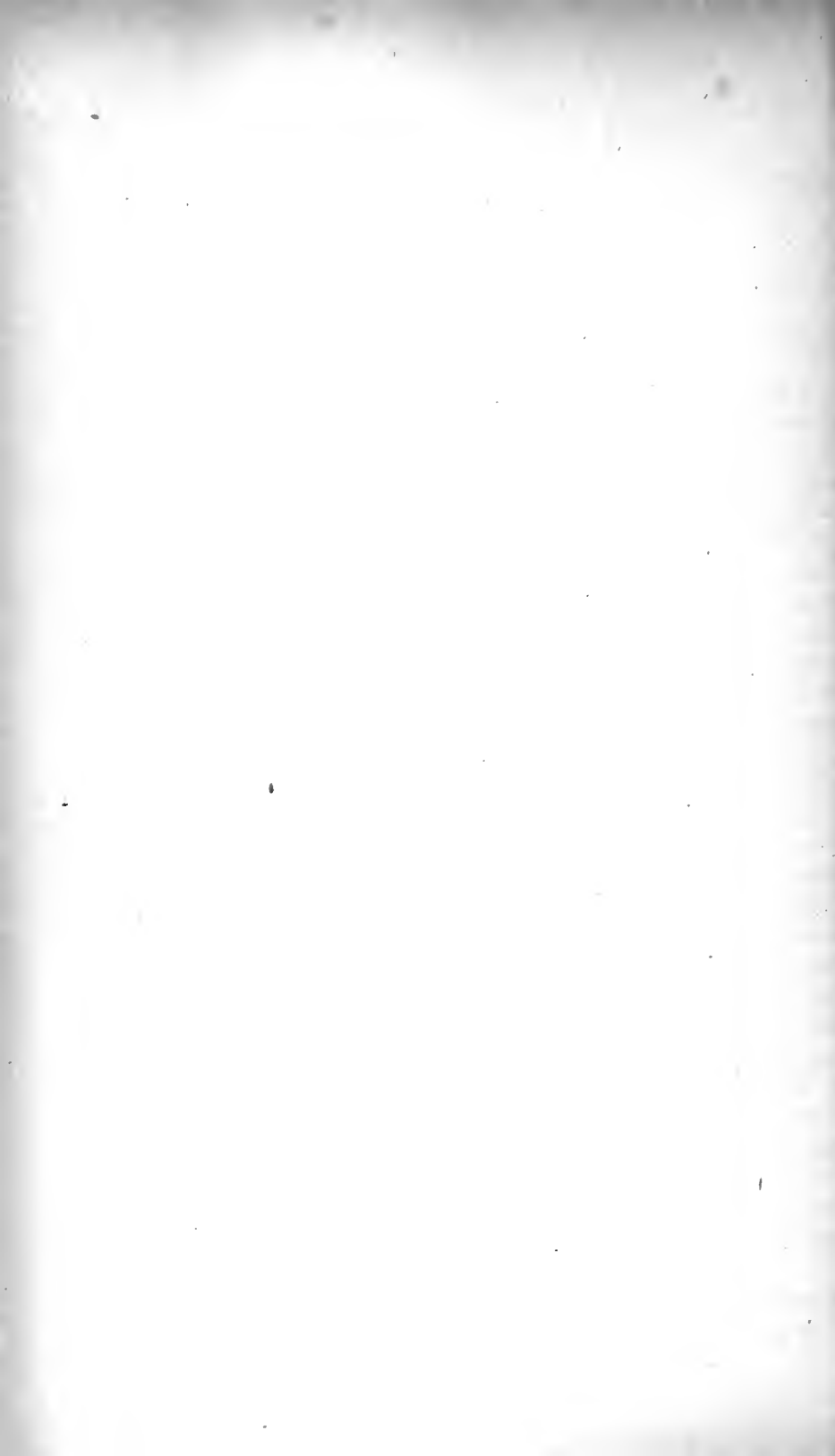
Rheumatism, fevers, and dysenteries, in the fall and winter; diarrhoeas and miasmatic diseases in the spring and summer, go to fill up the quota of marine-hospital patients. Sunstroke among the freedmen we never have, and but little among the whites; but both whites and blacks are an easy prey to low forms of fever.

The injuries received are generally of a minor character: Sprains, contusions, and occasionally a broken limb, comprise the sum total. Neglect of bruised shins not infrequently results in what is known as the "sailor's old leg"—a chronic, indolent, sometimes varicose, ulcer, covering nearly the entire front of the leg, and almost incurable.

Not infrequently a sick freedman falls into the hands of a "boat-house" proprietor, who keeps him as long as his money lasts, and then turns him adrift, or, perchance, sells him a master's certificate (which was purloined from a former lodger) for the very coat off his back. A "boat house" in Pittsburg did quite a thriving business in this way, until it was broken up by the surgeon who made the discovery.

The comforts of a marine hospital are in such strong contrast with the hardships of the river, especially in winter, that the "rouster" frequently endeavors to make what is intended for his temporary relief, an asylum for idleness and ease after recovery. That this is receiving the attention of the surgeon now having the matter in charge at the port of Louisville, is shown in the fact that, with a decrease of only 155 admissions to hospital during the past fiscal year as compared with the year previous, there was a falling off of 10,863 days of relief furnished, or a saving of nearly \$10,000. A similar improvement may be looked for in the future at other ports upon the Ohio river.

DISEASES OF RIVER MEN—THEIR CAUSES
AND PREVENTION.



DISEASES OF RIVER MEN—THEIR CAUSES AND PREVENTION.

BY HORACE WARDNER, M. D.,
Surgeon-in-charge Marine-Hospital Patients, Cairo, Illinois.

THE Mississippi river, with its bayous and tributary streams, furnishes sixteen thousand six hundred and seventy-four miles of navigable waters. The great amount of shipping on these waters gives employment to many thousands of men who are constantly changing their locality from one place or river to another. The great majority of them are without any purpose in life save the gratification of their appetites. They have no settled home, and are consequently without its beneficial influences. The officers under whose immediate supervision they are employed are often extremely brutal and tyrannical. Many are large, powerful men, who are ready to enforce a command with the fist or a club on the slightest provocation. The men are also notoriously intemperate and improvident. They seldom lose an opportunity when in port of "getting on a drunk," not unfrequently ending in a row in which pistols, knives, or clubs are freely used. When unemployed they are inclined to continue their indulgences to a greater or lesser extent until their money is gone, or they become sick and disabled. Many of these men are outlaws, avoiding the penalty for offences against the peace of society, and resort to this occupation for a livelihood, passing under assumed names, changed for different localities. Their occupation and surroundings afford many opportunities for theft and robberies, and even murder, with a fair prospect of escaping detection. On this account the business is attractive to a certain class of men who have forfeited their claims to respectability and confidence. By their criminally improvident habits they become, when sick and disabled, dependent upon charity, or the means and accommodations which the Government has provided for them.

In the hospitals we find them principally suffering from diseases contracted under the exposure incident to their vocation on the water, and their intemperate and lewd habits on the land.

The register of the hospital at this place shows an aggregate of 2,161 patients treated up to the first of August, 1874. These are entered under a list of eighty different diseases. The malarial fevers show an

average of 20.82 per cent. of the whole; dysentery and diarrhœa, 9.9 per cent.; acute diseases of the respiratory organs, 5.87 per cent.; rheumatism, 7.63 per cent.; small-pox, 4.25 per cent.; contusions, wounds, fractures, and other injuries, 12.34 per cent.; and venereal diseases, 17.57 per cent. The latter are nearly all syphilitic, simple gonorrhœa being rarely admitted to hospital for treatment.

It seldom happens that a river man enters hospital who has not had syphilis at some time during his life. Partly because of indifference to it, and lack of perseverance in treatment, the syphilitic disease in these men is seldom if ever fully eradicated. The local evidences may be removed, but there remains a syphilitic cachexia which complicates other diseases that may supervene, and which are thus rendered much less amenable to treatment. So true is this, and to such an extent does it modify and affect the course and result of disease among river men, that it becomes of the first importance to recognize its conditions and influences, with the view of determining what, if any, preventive measures may be successfully adopted. And in this consideration it is well to remember that we must take society as it is, and not our ideal of what it should be.

Ever since the organization of society, the subject of prostitution has been one of interest to statesmen and legislators; and although many stringent laws have been ordained in regard to it, the subject seems no nearer a solution now than at any time during the history of mankind. Thus far, judged by results, it has been utter folly to try to legislate prostitution out of existence.

The only progress yet made has been by endeavoring, in the light of modern science, to so regulate promiscuous sexual commerce as to prevent, so far as possible, the sad effects of venereal disease. Such regulations, where they have been enforced, seem to have diminished the army of prostitutes and checked to some extent the spread of the disease.

But such legislation has been ineffectual, and failed of the end in view, because it has all been one-sided. The fact seems to have been ignored, that there is necessarily in each case a male who may communicate disease as well as the female. If females are to be subjected to inspection at stated periods, and, if sound, furnished with a certificate of the fact to show to their patrons, is it any more than just that males desiring intercourse with these women should also be required to exhibit a like certificate, for the protection and safety of the females? I believe the social-evil problem will never be solved until laws and regulations are made and enforced as strictly with one sex as the other. Let houses of prostitution be subjected to police regulations on the

basis of equality of the sexes under the laws, and I believe syphilis might be eradicated.

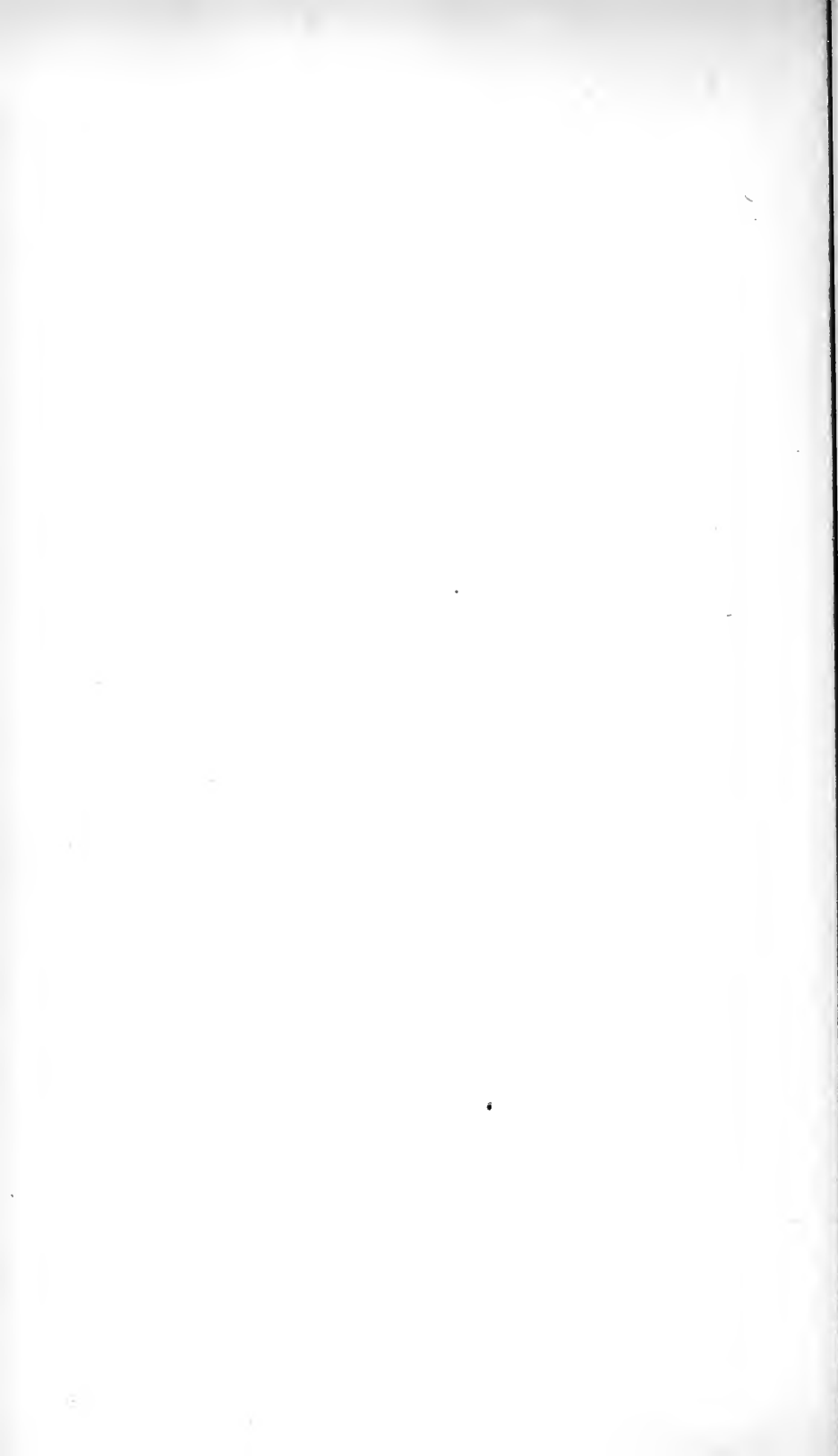
Should the time ever come when such regulations will be established, seamen and river men will have one less cause for disability and hospital care and treatment.

Another great source of evil to these men is intemperance. It is unnecessary to speak of the vile compounds which are retailed in the grogshops along these rivers. Enough has been done to show that intemperance cannot be prohibited by any means yet devised. The human appetite seems to crave stimulants. If native wine and beer could be made to take the place of whiskey, the great American drink and the bane of society, much would be accomplished toward ameliorating the condition of the intemperate. It is probably too Utopian to expect that laws may be enacted by the General Government discriminating against the latter and favorable to the former, so as to eventually suppress the manufacture of the more injurious whiskey, and supply its place with the milder and less harmful native wines and beer. But it is to be hoped that a time may come when our legislators will be above sordid and mercenary influences, and work for the best good of all the people in this respect. This time may be far off in a Government like ours, but much depends on the intelligence of the masses in coming to an appreciation of what course is best for all.

Meantime, some of the money annually sent to foreign countries, to convert very respectably-behaved and civilized heathen, could be at least as well spent in providing for the moral instruction of these men at home. If in every port of any considerable size a rendezvous were provided where these men could receive proper instruction and suitable books, papers, and amusements, to occupy them when unemployed, much could be accomplished toward elevating the moral standard among them.

On these river steamers the men below the rank of deck hands are very poorly cared for as to bedding, quarters, and accommodations for personal cleanliness and comfort. The sleeping apartments, where these do exist, are very small and filthy, and, consequently, unhealthy. By attention to these particulars, much could be done toward the amelioration of their condition, making them better men in their places.

The wealth of a nation depends upon its productions, and these require brain and muscle. Whatever tends to impair the fertility of brain or the strength of muscle tends to impoverish, and whatever tends to preserve these forces tends to prosperity.



PREVENTABLE DISEASE ON THE GREAT
LAKES.



PREVENTABLE DISEASE ON THE GREAT LAKES.

BY JAMES M. ALLEN, M. D.,
Surgeon-in-charge Marine-Hospital Patients, Milwaukee, Wis.

In the following article I shall endeavor to show from the records of the hospital under my charge that much of the disease treated therein may be more or less completely prevented by proper sanitary and police measures. In order to exhibit this clearly as a practical conclusion, the result of a careful study of actual facts, I have compiled from our records a set of brief tables:

I.—*Record of all Diseases and Injuries treated at the Milwaukee Marine Hospital from January 1, 1870, to August 1, 1874.*

Diseases.	No. of cases.	Diseases.	No. of cases.	Diseases.	No. of cases.
Tertian intermittent fever	126	Delirium tremens	3	Anasarca	2
Quotidian intermit'nt fever	31	Sciatica	1	Asthma	2
Remittent fever	25	Colic	1	Periostitis	1
Rheumatism, acute	11	Peritonitis, acute	1	Catarrh	1
Rheumatism, chronic	33	Conjunctivitis	6	Paralysis	2
Primary syphilis	27	Granular lids	2	Scabies	1
Constitutional syphilis	19	Psoriasis	2	Dyspepsia	1
Gonorrhoeal orchitis	13	Neuralgia	2	Epilepsy	1
Bubo	9	Furuncle	3	Irritable bladder	1
Bronchitis, acute	14	Pyelitis	1	Erysipelas, acute	5
Bronchitis, chronic	11	Small-pox	5	Bruise	32
Diarrhoea, acute	10	Aneurism popliteal	1	Sprain	21
Diarrhoea, chronic	3	Fistula urethral	1	Fracture, simple	16
Pleurisy, acute	1	Ulcer	26	Fracture, compound	3
Phthisis pulmonalis	18	Adenitis	1	Burn	3
Dilatation of heart	1	Cholera morbus	2	Scald	3
Headache	4	Jaundice	1	Concussion, spine	1
Abscess	9	Ictus solis	1	Concussion, brain	1
Synovitis	7	Dysentery	2	Lacerated wounds	21
Gastritis, chronic	1	Hamorrhoids	5	Gunshot wound	1
Pleurodynia	5	Typhoid fever	9	Amputation for injury	6
Felon	8	Lumbago	2	Frostbite	7
Fistula in ano	3	Pneumonia, acute	6		
Cerebro-spinal meningitis	3	Anchylosis	1	Total	609

The above table shows a total of 609 cases of all diseases and injuries. If we deduct from this the total of injuries alone, as shown by—

II.—*Cases, the result of external violence, treated from January 1, 1870, to August 1, 1874.*

Nature of injury.	Cases.	Nature of injury.	Cases.	Nature of injury.	Cases.
Bruise	32	Scald	3	Amputation	6
Sprain	21	Concussion, spine	1	Frostbite	7
Lacerated wound	21	Concussion, brain	1		
Simple fracture	16	Gunshot wound	1		
Compound fracture	3	Urethral fistula, from injury	1	Total	116
Burn	3				

there remain 493 cases of disease proper.

Of these 493 cases, it appears by—

III.—*Cases of Malarious Disease treated during above period.*

Tertian intermittent fever.....	126
Quotidian intermittent fever.....	31
Remittent fever.....	25
Total.....	<u>182</u>

that 182 were of directly malarious origin, and consequently partially preventable by proper care and prophylaxis.

Again: of this total of 493 cases, we see by—

IV.—*Cases of Venereal Diseases treated during above period.*

Primary syphilis.....	27
Constitutional syphilis.....	19
Gonorrhœal epididymitis.....	3
Bubo.....	9
Total.....	<u>68</u>

that sixty-eight cases were directly of venereal origin, and at least partially preventable by proper police regulations.

To the above may be fairly added, as belonging to the class of preventable diseases, at least one-half, say sixteen, of the cases of chronic rheumatism, as unquestionably resulting from syphilitic infection; the five cases of small-pox as directly preventable by proper measures as to vaccination; and one-half the cases, say twelve, of ulcer, as more or less remotely syphilitic in origin.

It appears, then, from

V.—*Diseases more or less preventable by proper sanitary and police regulations.*

Malarious diseases.....	182
Venereal diseases proper.....	68
Small-pox.....	5
Other diseases, the result of venereal taint.....	28
Total.....	<u>283</u>

that, in a total of 493 cases of all diseases treated at the Milwaukee marine-hospital for the years above specified, 283, or much more than one-half, belong to the class of preventable diseases, by which I do not mean diseases which can be wholly blotted out of existence by proper prophylaxis, but only such as may be greatly diminished in amount thereby.

With regard to the malarious diseases treated at this hospital, viz., remittent and intermittent fevers, being 182 cases out of 493 cases of all diseases proper, or nearly two-fifths of the whole, almost all these originate on the malarious coast of Michigan.

Now it is evident that much might be done in the way of prevention in this class of diseases by obliging owners and officers of vessels trad-

ing to malarious districts to conform to a code of sanitary regulations. Thus, it might be required of such owners and officers, that they should, as far as possible, keep their vessels at a considerable distance from a malarious shore; that they should not allow their vessels to lie in the rivers of malarious districts at night, unless absolutely compelled to do so; that they should maintain fires on board their vessels after night-fall; should oblige their men to remain below decks in dry, warm places at night; should require them to be warmly clad when exposed to malaria; should fortify their systems by warm coffee or food before such exposure; and should take such other precautions as experience has shown to tend to guard the human frame against the poison of malaria.

The observance of such precautions might be made by law obligatory on owners and masters of vessels. Vessels might also be required to carry a proper supply of quinine and other antidotes to malaria, and be furnished with plain instructions as to the most approved method of using such medicines, both as prophylactics against malarious disease and as a means of cutting it short, as soon as it makes its appearance.

It may be said that it would be wholly impracticable to enforce the carrying out of such a set of sanitary and medical regulations, but I believe a simple code could be framed which, if not carried out to the letter in practice, would at least have a great influence upon the medical stores carried on board vessels and upon the conduct of the officers and care and treatment of the men, great enough to very materially diminish the amount of malarious disease treated at the Lake hospitals.

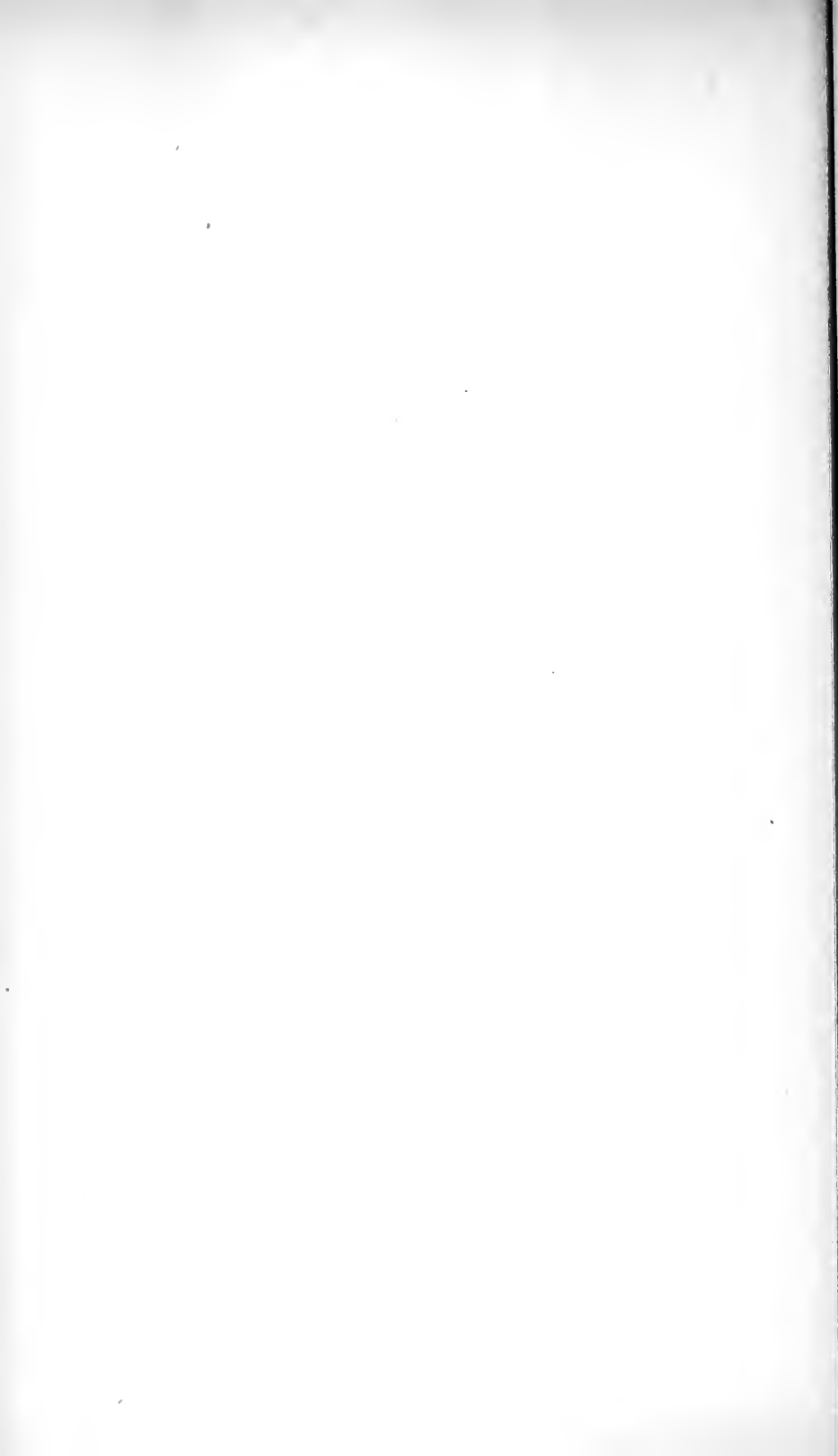
Table IV shows the proportion borne by venereal disease to the whole mass of disease treated at our port, viz: 68 cases out of 493, or about one-seventh of the whole. These diseases belong, emphatically, to the preventable class, and especially, as they affect sailors. It is a lamentable fact that, as a general rule, the first thing a sailor does on landing from his vessel, is to get drunk, and the next to go to a house of prostitution. Being usually a stranger in the town where he lands, he goes to a public brothel, and not to those more private places where the inhabitants of cities, who are supposed to be "posted," resort. Hence a proper police system for the regulation of the "necessary evil," for licensing houses of prostitution, and registering and medically examining their inmates, would give to sailors greater protection against venereal disease than to any other class of men. Without discussing the moral aspects of the question, I cannot but be convinced that such a police system would prevent a vast amount of disease

among our lake sailors, not only of a directly venereal character, but also much that remotely springs from or is superinduced by the debility and cachexia which result from syphilitic infection. To me, then, it seems that it would be wise for the proper authorities to use their influence, as far as may be possible, to bring about the inauguration of such a license system for prostitution in our lake cities from purely economic considerations.

There are but five cases of small-pox recorded in our tables, but in years when small-pox is epidemic that number may well be enormously exceeded, and it would be for the interest of the Marine-Hospital Service that all owners and masters of vessels within the United States should be forbidden by law to ship men unless they could show satisfactory evidence from a marine-hospital surgeon that they have been properly vaccinated or revaccinated within a specified number of years. Such a regulation could be easily enforced.

Besides the malarious, venereal, and contagious diseases, there are others toward the prevention of which something might be done by a code of regulations, enforcing proper sleeping accommodations, food, fire, &c., for seamen. I will not now attempt to make any suggestions on these points. All that I have aimed at above is to endeavor to show, from actual statistics, that much may be done by prophylaxis to reduce the amount of disease treated at Milwaukee and the other lake-port hospitals, and consequently to diminish the expense of those institutions, and to bring the Marine-Hospital Service at those ports to a self-sustaining condition.

SYPHILIS: THE SCOURGE OF THE SAILOR
AND THE PUBLIC HEALTH.



SYPHILIS: THE SCOURGE OF THE SAILOR AND THE PUBLIC HEALTH.^(a)

BY FRED. R. STURGIS, M. D.,
Assistant Surgeon to the Manhattan (N. Y.) Eye and Ear Hospital.

IN this attempt to answer the question, How does Syphilis affect the Public Health? it has been found convenient to divide the investigation into the following heads:

- I. Is syphilis of common occurrence?
- II. Can it be considered a disease fatal to life?
- III. Does it favor the development, or fatally influence the course, of other diseases?

In answering the first question it is necessary to preserve the distinction between the different varieties of venereal diseases, viz: gonorrhœa, chancroid, so-called, and syphilis proper, and to this latter is attention, in this answer for the most part, confined.

In collecting statistics the sum total of poor patients treated during the year 1873 at the various hospitals and dispensaries of New York City was first obtained. Selecting a certain number of these institutions, their records were then examined, and from these the number of patients treated during two months of the year was ascertained—January and August being selected as presenting a fair average. Of these patients the number afflicted with venereal diseases, and of these venereal patients the number who were the subjects of syphilis, acquired and congenital, were next ascertained. And with this knowledge as a basis, an estimate was made of the total number of venereal and syphilitic poor patients and the percentage they bear to the total number. This, however, disposes only of those who come for treatment to public institutions, and does not include those treated at their homes, at physicians' offices, by apothecaries, and by quacks. Admittedly only an estimate, and one inherently defective, from the impossibility of obtaining any absolutely positive knowledge on the subject, still the figures are of some value in determining whether the disease is widely spread or not; and such estimate is thought to be

^a Abstract of a paper read at the Philadelphia meeting of the American Public Health Association, November, 1874.

more useful than vague statements based upon personal belief, or from statistics gathered from one's own private practice. This is obvious at a moment's glance. A specialist in this class of diseases, judging from his own experience alone, might say in his haste, All men are syphilitic. While another who saw but little of it would as confidently assert that it was comparatively rare. Both would be wrong—the truth probably lying in that golden mean between the two statements, which from time immemorial has been declared as the safest course.

In the United States, the Army statistics between the years 1840 and 1859 show a mean strength of 187,144 men; of these, 2,169 suffered from syphilis, a percentage of 1.1. For the five years from 1870 to September, 1874, inclusive, the total mean strength of the Army in the Department of the East was 35,206; the total number of venereal cases was 2,920, while the total number of syphilitic cases was 1,488. Expressed in percentages, that of venereal cases to total strength of Army would be 8.29; of syphilis to total strength of Army would be 4.22; and of syphilis to total venereal, 50.95.

The reports of the Supervising Surgeon, U. S. Marine-Hospital Service, for 1872 and 1873, give the total number of patients treated at 24,645. Of these, the venereal cases amounted to 4,170, or over 16.92 per cent. of the total number of patients; and of these venereal cases, 3,779, or over 15.33 per cent. of the total number of patients, were syphilitic. The percentage of syphilis to all venereal diseases was over 90.38 per cent.

The reports of the mercantile marine of New York City give a still more disastrous result. From January, 1871, to October, 1874, the total number of patients was 6,275; of these, the venereal cases amounted to 1,532, or over 24.34 per cent. of the total; and of these venereal cases, 1,016, or over 16.19 per cent. of the total, were syphilitic, the percentage of syphilitic to all venereal cases being over 66.31 per cent.

Of the British Army, the reports for 1869, 1870, and 1871 have been consulted; and for that period, we find the mean strength of the Army to have been 388,221. Of these, 58,960, or over 15.18 per cent. of the whole Army, were treated for venereal disease; and of these, syphilis is credited with 29,851, or 7.68 per cent. of the entire force.

Of the United States Navy, the statistics of the naval hospital at Brooklyn, for the years 1870 to 1874 have been examined. The total number of patients admitted into hospital for those five years was 1,385; of which, 199, or 14.36 per cent., were venereal. Of these venereal cases, 119, or more than 85.9 per cent., were due to syphilis. The percentage of syphilis to total venereal diseases being over 59.79 per cent.

In New York City there are forty-six hospitals and dispensaries, in which 280,536 patients are annually treated. During the months of January and August, 1873, the total number of patients treated at these hospitals and dispensaries amounted to 32,549; of this number, 1,458 were venereal cases, 595 being due to syphilis. Expressing this in percentages, that of venereal to total number treated is 4.4 per cent., or 44 in every thousand patients; that of syphilitics to total number treated is 1.8 per cent., or 18 in every thousand patients; and that of syphilitics to total number of venereal cases is 41 per cent., or 410 syphilitics in every thousand venereal patients. If, now, we estimate the total of poor persons who received gratuitous medical aid in New York during 1873 as 280,537, and compute the percentage of venereal at 4.4 per cent., we find that in this city the indigent venereal amount to 12,341 persons, and that, out of this number, 5,045 are cases of syphilis; but this manifestly takes no cognizance of private cases. What proportion of venereal shall we assign to them? In the statistics of the Marine-Hospital Service—and these are perhaps as good as any upon which to base an estimate, coming as they do from official sources—we found the percentage of venereal to total number of cases ranging from 16 to 24—call it, as an average, 20 per cent. That would be five times as much as the percentage above ascertained for the venereal poor of New York, thus leaving four-fifths to be accounted for. In the reports we found that the percentage of syphilis to total number was over 16, that is about ten times as much as the above estimate, thus leaving nine-tenths to be accounted for. If we adopt this view, we should have a total of 49,364 persons treated privately for venereal diseases in New York City, of which number 45,405 would be syphilitic; in other words, out of a population of 942,294, there would be 61,705 persons suffering from venereal diseases in some form or other, and of this number 50,450 would be afflicted with syphilis.

To avoid, as far as possible, all sources of error in calculating the statistics of public institutions, besides examining the books of the skin and venereal departments of the hospitals and dispensaries, those of the women's, children's, and surgical departments were also examined; and, notwithstanding all the care taken, it is believed that the true amount of syphilis, even among the poor, exceeds the amount here stated. And this opportunity is taken of pointing out how defective and careless the registration of patients seems to be—a well-kept record book being the exception—thus rendering accurate statistics well nigh impossible.

From the calculations of Mr. Wagstaffe in the English Records, we

find the proportion of venereal to total number of poor patients, as given by that gentleman, to be 6.92 per cent.; of syphilitic to total number of poor patients to be 3.53 per cent.; of syphilis to all venereal diseases to be 51 per cent. Compare these with the corresponding estimates above given of 4.4 per cent., 1.8 per cent., and 41 per cent., respectively. Mr. Wagstaffe's observations are based upon time varying from one day to one week; and he says, in summing up his report: "If this report be considered extensive enough (and it comprises about a week's observation of, presumably, one-quarter of the sick poor of London) to warrant general deductions being made, it may be inferred that, among the million and a half of poor population of the metropolis who receive medical relief for disease at hospitals, dispensaries, work-houses, and at the hands of the medical officers, during the year, nearly seven per cent., or about 1 in 14, are affected with venereal disease of some kind. These numbers, it must be remembered, do not include midwifery cases."

In the absence of the official returns of the French Army and Navy, the figures recently furnished by M. C. J. Lecour, Prefêt of the French Police, in his report *La Prostitution à Paris et à Londres*, are here given. M. Lecour states that, in 1868, 9,796 venereal patients were treated in Paris at the hospitals, including the four military establishments of Val de Grâce, Gros-Caillo, Saint Martin, and Vincennes. This includes no private cases. He then goes on to say: "Without fear of being taxed with exaggeration, we may consider these figures as one-fifth of the total number of venereal patients in Paris who are treated at their homes by physicians, or who seek relief at the hands of apothecaries and charlatans. If this be so, we get a sum total of 48,980 cases, a formidable array, but one probably much below the real amount."

It would be of little use to continue any further statistics; and these are presented, indefinite as they are, and ranging between such extremes, for the purpose of showing that the disease is probably widely spread. Mr. Acton's statistics, as well as those of a writer in the *Westminster Review* for July, 1869, are purposely omitted, because both writers seem to have fallen into error in computing the percentages of the disease. They have, apparently, only examined the registries of surgical out-patients, omitting the retaining divisions of the hospitals, and this gives no idea of the true percentage, inasmuch as to these surgical clinics venereal patients are more largely admitted than others. Their figures range from $37\frac{1}{2}$ to 50 per cent.; but although this may be true of one department alone, it is by no means so of the

entire hospital; and if we start with these percentages as a basis, our estimates will be altogether too large. Abundant as venereal is, it must be agreed that it is too much to accuse one out of every two or three persons as being diseased.

The answer to the second question, Can syphilis be considered the cause of a large number of deaths? must be a decided negative. An English writer on this subject says: "I have now and then cases of tertiary symptoms which return again and again and offer most rebellious instances of the virulence of the disease amongst the weak and the debilitated; but still death from syphilis is almost unheard of." (Acton.) And even among the poorer classes of society death from this cause is not common.

For clearness in dealing with this subject, the deaths from acquired and congenital syphilis are separated, so that we can see plainly in what class of cases syphilis is especially to be dreaded. The statistics from four of the leading London hospitals, St. Bartholomew's, St. Thomas's, St. George's, and the London, from the Charity Hospital on Blackwell's Island, N. Y., and from various other sources, have been compiled; and to those who think acquired syphilis a fatal disease the result will be surprising.

At St. Bartholomew's, for twelve years, (1860 to 1871, inclusive,) 2,292 cases of syphilis were treated; of these 23 died, a little over one per cent.

At St. Thomas's, for six years, (1866 to 1871, inclusive,) 130 cases were treated; of these, six died—a little over four per cent.

At St. George's, for five years, (1866 to 1870, inclusive,) 287 cases were treated; of these, five died—more than one and one-half per cent.

At the London, for three years, (1863 to 1865, inclusive,) 209 cases were treated; of these, seven died—a little over three per cent.

At the Charity Hospital, Blackwell's Island, for four years, (1854 to 1857, inclusive,) 5,668 cases were treated; of these, fourteen died—a little over two-tenths of one per cent.

It may be urged against these statistics that, although deaths in the hospitals were so few, many may have died outside—accidents which have not been taken into account. But this objection, upon examination, is found to be more apparent than real: First, because the cases admitted into hospital are the severe ones, such as would be most likely to prove fatal; in fact going into hospital is looked upon as the *dernier ressort*; and, second, extending, as these observations do, over a series of years, those cases which ultimately prove fatal would probably return to hospital to end their days, and would thus finally figure in the reports. If, therefore, we find such good results under the

unfavorable conditions that hospital patients generally present, we may fairly assume that the mortality outside is not very great.

The figures just considered comprise only the secondary and tertiary forms of the disease, the primary lesions and congenital cases being purposely omitted, because the former never, in themselves, prove fatal, and because the latter do not come into a consideration of deaths from acquired syphilis.

We have, then, a total of 8,586 cases, out of which we count fifty-five deaths, or .64 of one per cent. Let us see what are the causes of death in these cases. On this point the London and Charity Hospitals are silent. St. George's gives the cause of one only—œdema glottidis, from necrosis of the thyroid cartilage, causing suffocation; St. Thomas's gives one where the patient died from the effects of gummata of the brain; and St. Bartholomew's gives the cause of fourteen of its twenty-three cases. They are: One from tuberculosis, apparently independent of syphilis; nine from exhaustion, two of these after tracheotomy; two from pleurisy and bronchitis, not stated as syphilitic; one from peritonitis and anal fistula; and one from erysipelas.

Out of these sixteen cases it is difficult to ascribe the deaths of all to syphilis, although it may have been, possibly was, the indirect cause. One agency, however, is very prominent, and that is exhaustion; and we likewise note that in all these cases of death, the end was accelerated, if not caused, by diseases which are in themselves serious, perhaps actually fatal, entirely apart from any consideration of syphilis.

Turning, now, to the mortuary records of large cities, and selecting those of 1871, in London, New York, and Philadelphia, we obtain the following:

In London, the total number of deaths was 80,434; from syphilis, 352—a little over four-tenths of one per cent. of the whole number.

In New York, the total number of deaths was 26,976; from syphilis, 142—a little over one-half of one per cent. of the whole number.

In Philadelphia, the total number of deaths was 16,993; from syphilis, 19—a little over one-tenth of one per cent. of the whole number.

As it is probable that these figures do not strictly represent all the deaths from syphilis, and to give full allowance for all possible errors in registration, &c., we will double the number of deaths above given due to syphilis—not that it is really believed that amount of error exists, but to give the fullest possible latitude. The figures would then read—

London, 1871;	deaths from syphilis	= .8+	of one per cent. of the total number.
New York,	do.	do.	= 1.+ per cent. of the total number.
Philadelphia,	do.	do.	= .2+ of one per cent. of the total number.

Candidly, is that such a large percentage, even with this increase of one hundred per cent.? Let us see how the deaths compare with those from some of the zymotic diseases, *ex. gr.*, scarlatina, typhoid fever, measles, and small-pox :

Total deaths in London during 1871.....	80, 430
From Scarlatina.....	1, 902
Typhoid fever.....	871
Measles.....	1, 427
Small-pox.....	7, 912
Syphilis.....	352
Total deaths in New York during 1871.....	26, 976
From Scarlatina.....	791
Typhoid fever.....	239
Measles.....	409
Small-pox and varioloid.....	805
Syphilis.....	142
Total deaths in Philadelphia during 1871.....	16, 993
From Scarlatina.....	262
Typhoid fever.....	313
Measles.....	41
Small-pox.....	1, 879
Syphilis.....	19

Before passing on to a consideration of the mortality in congenital syphilis, it will be worth while to glance at some statistics which are not open to, at least, one objection—the *mauvaise houte*, which, perhaps, occasions some false returns as to the true cause of death. In the American Army from 1840 to 1859 the total number of cases of syphilis is computed at 21.69; from which there were thirteen deaths, or a little less than six-tenths of one per cent. of the total number of cases. In the British Army for the three years, 1869 to 1871, inclusive, the total number of syphilitic sick was 29,851; among these, thirty-two deaths occurred—a little over one-tenth of one per cent. of the entire number. Even if we include those who died, were invalided, and discharged the service from this cause, it only amounts to 460 men out of a total strength of 388,221.

In face of these figures, would it be fair to consider syphilis a fatal disease? Decidedly not.

But there is one aspect in which syphilis is to be dreaded, and where it is especially mischievous, and that is in the congenital forms of the disease. To revert again to the dry, but necessary, array of figures, we found that in London during 1871 the number of deaths from syphilis was 352; of these, thirty-eight occurred between the ages of five and ninety-five years. In New York, during 1871, the number of deaths from syphilis was 142; of these, twenty-two occurred between the ages of five and ninety-five years. In Philadelphia, during 1871, the number

of deaths from syphilis was nineteen; of these, seven were between the ages of five and ninety-five years.

Of the remainder, in London, 314 infants under five years of age died from syphilis, and, of this number, 281 before the completion of their first year; in New York, 120 infants under five years of age died from the same cause, and, of these, 113 before the completion of their first year; in Philadelphia, twelve infants under five years of age died from syphilis, and, of this number, ten before the completion of their first year.

To present it more concisely: In London, in 1871, the percentage of deaths under five years, to the total of deaths from syphilis, was over eighty-nine. In New York, in 1871, the percentage of deaths under five years, to the total of deaths from syphilis, was over eighty-four. In Philadelphia, in 1871, the percentage of deaths under five years to the total of deaths from syphilis, was over sixty-three.

Large as these figures seem, they are borne out by the statistics of other countries. In the Moscow Hospital, of Russia, for the period between 1860-'70, inclusive, the percentage of deaths among syphilitic children ranged between sixty-three and eighty-two. In Sigmund's wards, in Vienna, out of sixty-one births, all but two are known to have died; of these births, seventeen were premature and forty-four at full term. Of the seventeen premature births, eleven were born dead; of the forty-four at full term, three were born dead; of the forty-seven living children, four lived more than three months, and in two the result is unknown; of the remaining forty-one, the mean duration of life was twenty-six days, the shortest period being one hour, and the longest ninety days.

Before leaving this question of the mortality of syphilis, we may compare the syphilitic deaths of previous years with those of 1871, to see if the number has increased or diminished. Taking England and the United States as a basis of comparison, and dividing the time into periods of ten years, we find that the number of deaths in England from syphilis, between 1841-'51, was 598; between 1851-'61, was 1,177; between 1861-'71, was 1,742. In the United States, between 1840-'50, the number of deaths from syphilis was 146; between 1850-'60, was 233; between 1860-'70, was 590.

In cities the rate of mortality from the same cause has also increased; thus, in New York the number of deaths from syphilis in 1866 was 44, while in 1871 it was 142; and in Philadelphia the numbers stand 22 in 1866 against 9 in 1860, (but for the year 1871 there was a decrease from some cause or other; only nineteen being credited to syphilis.)

This increase is due, perhaps, to improved and more careful registration, and although these figures do not absolutely represent all the deaths from syphilis, they are not much out of the way; moreover, should we decide to reject them totally, as untrustworthy on this account, then must we do so for all mortuary statistics, as they are liable to the same objection. Thus, with regard to scarlatina, the patient may die of nephritis and the death would then be recorded as one from nephritis and not from scarlatina, to which latter disease, however, it properly belongs. Another point: Faulty as figures are, the proverb to the contrary notwithstanding, they are, in the main, a safer guide than vague statements based upon personal belief—certainly than such statements as those in a paper in the *Westminster Review* for July, 1869, in which the most astonishing accounts are given of the ravages produced by syphilis, and the marvellous modes of its transmission to the infant through the mother's milk; this, too, by a writer who is understood to be a medical man.

The effects of syphilis are serious enough without exaggerating them; and such exaggeration as the following—coming, as it does, from a man whose acknowledged rank and position entitle his dicta to respect—cannot be too strongly protested against. Sir William Jenner, the President of the Epidemiological Society of London, in his address delivered at the opening of the session of 1866-'67, makes the following statement *ore rotundo*: "Syphilis, more often than has been commonly believed, means death—death to the primarily syphilized, and death to his offspring." Is this strictly correct?—does syphilis mean "death to the primarily syphilized?" If it does, how can we reconcile the large number of cases coming under treatment with the small number of deaths, small even when the number recorded is doubled.

The danger to the public health from syphilis is not so much to those who acquire the disease as to those who inherit it; and this not only from the relative large mortality among the latter, but from the fact that the inheritors of this disease possess a vitiated vitality and a tendency to degeneration of tissue.

This brings us to the consideration of the third point: Does syphilis favor the development or fatally influence the course of other diseases?

Marowski, in a paper contributed to the *Deutsche Klinik* for 1863, in his summary, says: "It is nevertheless very probable that the children of such (syphilitic) parents receive a certain morbid predisposition; *e. g.*, to scrofulosis, hydrocephalus, phthisis pulmonalis."

The question has often been broached, Is scrofula syphilis?—and

has been variously answered, according to the belief or predilections of the proponent. The writer does not, himself, believe that scrofula can be considered as due to syphilis any more than to tuberculosis, to cancer or to malarial influences. A large number of children, born of parents where one only is seemingly diseased, notably the father, are healthy; this may also be the case where both have been infected; such children, then, have neither inherited syphilis nor any degenerate tendency, so far as syphilis is concerned. Only those show these morbid predispositions who have had evidences of the disease, but no child goes through the early years of life free from symptoms, to suddenly break out at puberty or in adult life with so-called "latent syphilis." Then these cases of scrofula, rickets, &c., said to originate from syphilis, do so no more than do these same diseases when they occur in children the offspring of phthisical persons. *Syphilis can only produce syphilis.* It cannot produce phthisis any more than it can measles. But syphilis does endow the child with a vitiated, enervated frame, and if it happen to survive the first few years of its existence, it is prone to succumb to any extra strain imposed upon it, and is less able to resist attacks of sickness which a healthy child would. This view does not militate against the possibility of the child inheriting a tendency to other diseases besides the syphilitic taint, *e. g.*, phthisis, rheumatism, or gout. This belief, long entertained, is corroborated by others, among whom may be cited Mr. Hutchinson of London, who, in an article to the Medical Times and Gazette, under date of December 14, 1867, writes as follows :

The determination as to what should, and what should not, be assigned to the remote influence of a syphilitic taint is one of very great difficulty; yet I hope to be able to show that there are certain methods of inquiry, by pursuing which a fairly satisfactory conclusion might be arrived at. I am sure you will agree with me that the time for mere speculation and conjecture is passing by. There were those amongst the physicians of more than a century ago who suspected a taint of lues in almost all the chronic maladies of youth, and a living author has, long prior to the authority you quote, asked, "Is not all struma syphilis?" In support of such suggestions, however, few or no facts have been brought. On the other hand, a very considerable body of evidence has been collected, which favors the belief that the results of syphilis, from first to last, are specific and peculiar, and that with due care they may be distinguished from those due to other causes. In infancy, if a syphilitic child has a rash, it is peculiar, and he is not more liable than others to common eczema and the like. So, at the age of puberty, he may have nodes, interstitial keratitis, deafness, phagedenic lupus, or visceral disease, but whatever he has it is still peculiar. No non-syphilitic child would, by any chance, present similar conditions, nor does the syphilitic one display those common to other forms of cachexia. With the utmost deference to the great

authority whose opinion you have quoted, I venture the opinion that syphilitic children will not become either rickety or tuberculous. I use these words in their strict sense; we must not confuse periostitis or general want of development with rickets, nor gummos deposits in glands, or viscera, with tuberculosis. You will observe that I avoid dispute as to "struma." The word "struma" is too indefinite in its meaning to admit of any profitable discussion as to its causes. What one surgeon would call strumous, another would unhesitatingly consider syphilitic, and, without any doubt a considerable array of symptoms which were formerly ranked as struma we may now safely class as specific. The now typically syphilitic physiognomy used formerly to be considered the typically "strumous." I therefore restrict our difference of opinion to rickets and tuberculosis—conditions which are definite and well understood. Of course, I do not assert that inherited taint confers any immunity from other diseases. If a patient be exposed to the influences which produce two different maladies, he may show the two in combination, and thus a syphilitic patient may easily be also rickety and tuberculous. I do, however, express strongly my present conviction that he will not suffer one whit more severely from the latter diseases because he is syphilitic, nor will he have been in the least predisposed to their attacks.

And here the post-mortem table would seem to bear out clinical observation; witness Parrot's and others' cases, where distinctive marks are laid down between the osseous lesions due to inherited syphilis and those due to rickets.

It will not be devoid of interest to glance for a few minutes at the influence which syphilis exercises over the course of the zymotic diseases, more especially over small-pox and scarlatina. The observations and recorded opinions upon this branch of the subject are very meagre indeed, but such as we possess are very instructive. Some belong to the acquired, others to the congenital variety of the disease. Bamberger^(a) and Fronmüller^(b) report cases where the subjects of acquired syphilis were seized with small-pox in the course of their disease. Bamberger's two cases show that the small-pox pustules ran their course *secundum ordinem*, without showing any tendency to phagedæna or ulceration; but that, as soon as the crusts became detached, the pustules, instead of healing up, became transformed into mucous patches, which finally yielded to specific treatment. The course in Fronmüller's one case was not, however, so happy. Here the pustules seated on the face and extremities took on ulcerative action, while on other portions of the body they did not. The pustules upon the arms and legs became actively ulcerated, with a tendency to phagedæna.

These cases are altogether too few to allow of generalization which

^a Oesterreich. Zeitsch. f. Prakt. Heilkunde. 1858.

^b Wurzb. Med. Zeitsch. 1860.

shall be of value; but, if it be permitted to do so, they would go to show that acquired syphilis has very little, if any, effect upon the course of small-pox, certainly no fatal influence.

We find, however, a difference in the cases of scarlatina occurring in *congenital* syphilis. Here the results were fatal, and due, in the opinion of the recorders of the cases, to the syphilitic complication. Dr. Edward Woakes, of Leeton, England, at a meeting of the British Medical Association,^(a) gave the results of five cases of scarlatina, complicated with congenital syphilis, and his deductions are so interesting that they may be given somewhat in detail. He says:

To most physicians it has occurred to meet with cases of scarlet fever assuming from the outset a distinctly malignant character, at a time when the type of the prevailing epidemic has been of a favorable kind. Under these circumstances, the question must have propounded itself with perplexing urgency, What is it in these exceptional instances that constitute their virulence? Why should scarlet fever be dreaded as a scourge of worse than Egyptian terror by the members of one family, while, in the adjoining house, perhaps, it asserts itself as a comparatively mild ailment?

The following suggestion towards the solution of this problem resulted from the observation of four or five epidemics of scarlet fever, and is based upon data supplied by a knowledge of the early medical history of the fathers of the patients. As the result of this historical information in the cases to be briefly detailed, the writer has deduced the conclusion that *their malignity was derived from the circumstance of inherited syphilis*.

CASES I AND II.—About twelve years ago, a gentleman came under my care with a large Hunterian chancre of the glans penis, and, while under treatment, informed me he was shortly about to marry. In spite of all remonstrance, he appears to have carried out his intention very shortly after the primary sore had disappeared, and in less than eight months afterward I was informed that his wife had been confined, in a distant town. It was not long before I was called upon to attend this child for very characteristic symptoms of constitutional syphilis; and frequently afterwards did this condition recur, or accompany and complicate every trifling ailment that befell it. In the course of two years another child was born, prematurely, but by dint of much care survived and gave promise of arriving at maturity. Like his brother, he manifested the characters of inherited syphilis. A girl was born in due course, also prematurely, but only survived its birth some three weeks. One or two abortions followed, but, fortunately, no live birth. In the autumn of 1871, during the prevalence of a not remarkably severe epidemic of scarlet fever, these children, having attained the ages, respectively, of nine and seven years, fell with the disease. The elder one, who was first attacked, rapidly developed symptoms of severe blood poisoning. Stupor with low muttering delirium set in within twenty-four hours of the seizure. Intense rash, a temperature of 105 degrees, followed by severe throat symptoms and putrid discharge from the nose and mouth, presaged a fatal issue, which occurred

on the sixth day. The second boy then sickened, and, though at first with less intensity, he, too, sank at the close of the first week.

CASE III.—About the same time I prescribed occasionally for the child of a groom, aged a little over two years, the subject of scarlet fever. His father, I knew, had a venereal attack three years previously, but, as I did not attend him, cannot testify to its exact character. This patient progressed favorably for a fortnight, when malignant throat symptoms set in under which he sank at the end of the third week.

CASES IV AND V.—About the period at which the history of the first detailed cases commenced—twelve years since—I treated another patient with primary syphilis. He was apparently well acquainted with the phenomenon, made very light of the recurrence, and ceased his visits long before it was prudent to discontinue treatment. Almost my next introduction to him was in the early part of the present year, when the epidemic of scarlet fever, which had nearly disappeared during the winter, revived, and became more general during the inclement spring months. At this period I was requested to see his daughter, about three years old, who was said to be very ill. I then ascertained that of five children born since his marriage this was the only one now living, an infant having died in convulsions, after thirty-six hours' illness, three days previously. This infant, it should be stated, developed a rash a few hours prior to its death, which the friends supposed might be measles, but which there is little doubt was scarlatinal. I found the only surviving child in a moribund condition; an ill-developed dusky rash of scarlet fever was diffused over the entire body, sloughy tonsils, enlarged submaxillary glands, stupor, tympanitic belly, and a temperature of 106 degrees, left no room for doubt, either on the score of diagnosis or prognosis. This child sank on the sixth day.

It is worth while to note, in passing, that the foregoing were the only fatal cases which came under my observation during the recent epidemic, including a period of nine months.^(a)

From the foregoing mass of evidence the following conclusions may be fairly drawn as answers to the questions proposed at the beginning of this paper:

I.—That syphilis is probably widely spread, and possibly is increasing in extent. This opinion, from the imperfect means at our disposal, must, for the present at least, remain more or less conjecture.

II.—The question of the fatality of syphilis, so far as the acquired form of the disease goes, may be answered in the negative; but its excessive mortality in the congenital variety renders the disease a serious and alarming one. One source of consolation remains, however, *i. e.*, that the disease does not probably extend to the third or fourth generation, usually dying out with the second; nor does it usually transmit any specially vitiated vitality to the descendants of the original sufferer.

III.—To the third proposition, we find much the same character of answer, *viz.*, a comparative harmlessness of acquired, and a marked

^a This experience of Mr. Woakes seems to be corroborated by a recent writer in the *St. Louis Medical Archives*.

fatality of congenital syphilis, through its influence upon the course and development of other diseases.

The danger to the public health lies more in the transmitted than in the acquired disease; and whether this be permanent and dangerous, or only temporary and remediable, must remain for future investigation to show. And in this connection it seems desirable to call attention to the present defective registration of just this kind of cases, and to suggest some more trustworthy method of investigation.

This subject was debated at the International Statistical Congress, held at St. Petersburg, in 1872; and, as a result of which debate, that body, recognizing "the grave importance of the effects caused by syphilis upon the physical and moral health of a population, as well as such influence upon its beauty and reproductive powers," and with a view to correct the defects in the methods of registration employed in Russia and other countries, framed a set of rules intended "to render the statistics of syphilis useful to science and to the wants of medical and sanitary practice." The following is a summary of these rules:

A.—*In relation to the form of the disease.*

1. To separate rigorously syphilitic infections from other diseases resulting from sexual relations. (chancres, gonorrhœa.)
2. To recognize as syphilitic affections of the genital organs (syphilitic chancre) only those affections which have produced (*engendre*) general infections.
3. To register separately cases of fresh infection and relapses (recurrences) of the disease as the only means of exactly learning the powers of propagation of the malady.

B.—*In relation to the means of transmission of Syphilis.*

1. The cases of infection from sexual contact, the surest data being obtained from the inspection of prostitutes and soldiers.

The facts collected in medical institutions, where suspected persons are treated, would serve to control the figures collected, and that is why the data furnished by inspection need absolutely to be verified by those of hospitals.

2. The cases of infection in other ways, (A) by lactation from the nurse to the infant, or *vice versa*; (B) by vaccination; (C) by the employment in common of instruments or tools in factories, (those of glass factories, for example;) and (D) by the employment in common of household utensils, linen, &c., in congregate life.

3. The cases by hereditary transmission.

REMARK.—It would be in the highest degree interesting to study the degeneration of populations resulting from syphilis which is transmitted from generation to generation in countries where intellectual cultivation is little developed, or where endemic syphilis begins (*syphiloides*), *e. g.*, in the north of Siberia, in Norway, Dalmatia, in the islands of the Archipelago, in Turkey, &c.

C.—*In relation to the degeneration of the population.*

1. Cases of abortion and premature deliveries caused by syphilis, (A) in the mother, (B) in the father. Syphilitic degeneration of the placenta to be noted, if possible.
2. Cases of death a few days after birth from want of vitality of the new born, the result of syphilis, (A) in the mother; (B) in the father.

D.—In relation to the influence of the disease on the nervous system.

1. Cases of mental aberration.
2. Paralytic affections.
3. Epilepsy and other nervous diseases.

E.—In relation to its influence on deformity.

1. Deformity of the face.
2. Deformities of other parts of the body, (the fingers, toes, &c.)

F.—In relation to fitness for military service

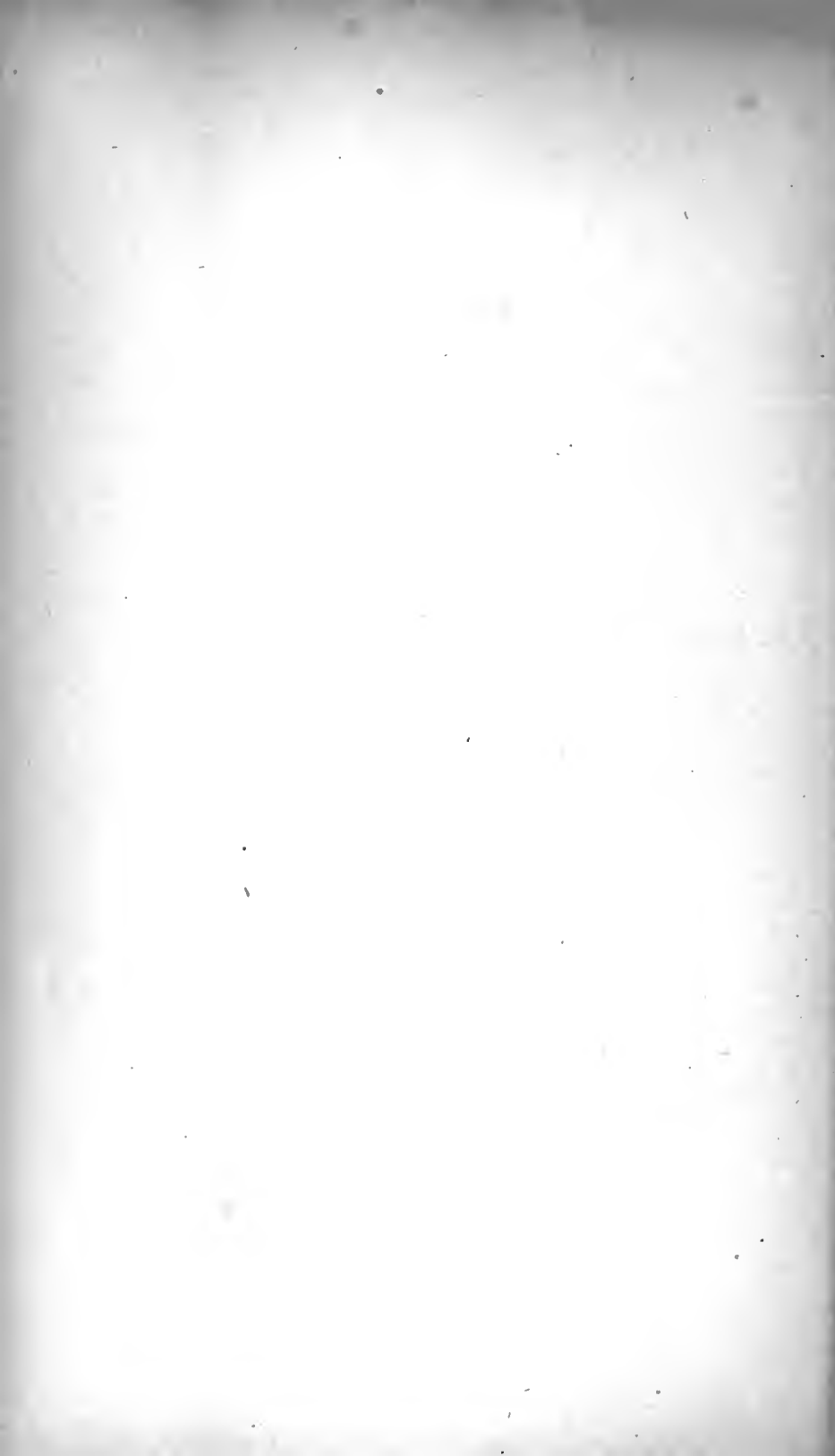
1. Cases of release from period of service on account of incapacities resulting from syphilis.
2. Cases of exclusion from the service on account of incapacities determined by syphilis.

The collection of the data on syphilis is obligatory in—

1. Hospitals, ambulances, lying-in hospitals, foundling hospitals, asylums for infants and nurses, houses of detention.
2. Among land and sea forces; these corps should be regularly inspected, as they are in Russia.
3. In sanitary bureaux and places of inspection of prostitutes.
4. It would in addition be desirable if medical officers attached to, or inspectors of factories, manufacturing, of large collections of men, and if those who inspect great bodies of people, would take means to collect facts bearing on this question.

"The detail in which the statistical data connected with syphilis can be gathered in any country depends upon the proportion of medical men to the mass of the population in that country; but, it is to be regretted that even in countries well off in this respect, central points have not been fixed where these facts can be utilized. This circumstance is so prejudicial to the uniformity of the materials already collected as to render it nearly impossible to work them into a harmonious whole. The national centre, for the collection of these data should be, in our opinion, the medical administrations, (sanitary bureaux,) if they have statistical sections, or central statistical offices. Unhappily, the medical administrations of all countries do not embrace the extended study of syphilis in their operations, but restrict their action to a somewhat defective study of syphilis propagated by prostitution." (a)

(a) Medical Statistics, with especial reference to Cholera and Syphilis. F. J. Monat, M. D., M. R. C. S. Trans. of the Epidemiological Society of London, Sessions of 1869 to 1873. Vol. III, Part II.



YELLOW FEVER AT PENSACOLA IN 1874.

YELLOW FEVER AT PENSACOLA IN 1874.

BY JAMES S. HERRON, M. D.,

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THE yellow-fever epidemic which prevailed here this year, (1874,) appears not to have been of local origin, but to have been, as on all previous occasions, the result of importation. On the 25th of May, quarantine was established, and, on the 27th, the Spanish bark *Virtuoso* arrived from Havana, (Cuba,) and was duly detained. One of the crew was reported ill with yellow fever, and two were said to have died during the passage. May 29, a man was brought in an insensible condition to the marine hospital, and was supposed to have congestion of the brain; but the yellow tinge of the skin aroused suspicion, which was verified by his death from black vomit on the next evening, May 30. After death the body turned quite yellow. This man, who was from a lighter in the Bay, had been, according to the most reliable information that could be obtained, engaged in removing ballast from the *Virtuoso*. He went into the hold and threw it out through the port into the lighter. The thermometer had averaged 78° for the previous five days. No other case occurred in the city, nor followed in the hospital, until August, although the fever continued to prevail at quarantine station, four miles distant across the Bay.

A German bark, the *Laura Maria*, entered port shortly after the *Virtuoso*. She was in a perfectly healthy condition at the time, but subsequently lost the greater part of her crew from yellow fever, having contracted the disease from being placed next to the *Virtuoso* in quarantine.

On the 11th of August three negroes, who had been working at quarantine station, came over at night in a boat to this city, and one of the number, L. Thomas, who was sick at the time, died on the 13th of black vomit, according to the report of the attending physician.

On the 16th the American bark *Elmira Combs*, from Aspinwall, entered port with the majority of her crew suffering from Chagres fever, and was placed between the *Virtuoso* and *Laura Maria*. A lighter which had been employed in removing ballast from them, came directly from the latter, and lay alongside the *Elmira Combs*. She was only detained five days in quarantine, and then permitted to

come to the city, where the greater part of her crew was discharged, who, putting up at Kelley's sailor boarding-house, went on a spree "and were all taken down again that night or the next day." One of the crew was admitted to the hospital on the 22d, with a high fever, supposed to be Chagres, which resisted all efforts to break, and continued until his death, on the 27th. The continuance of the fever, which quinine failed to check, the incessant vomiting during thirty-six hours, and the yellow discoloration which took place at the same time, excited suspicion as to the real nature of the disease.

On the succeeding day, viz., the 28th, a Mrs. Caudle, living near the house in which these men were quartered, was reported by the attending physician as having died of black vomit; and on the 29th the death of a sailor in a vessel at the wharf was reported as resulting from the same disease.

These cases confirmed my suspicion, on which, however, I had already acted in the cases of two comrades of the last-mentioned man. They entered on the 25th, and one recovered, but the other, who had only a slight fever that certainly remitted, but which was not checked by quinia, gradually sank, and died on the 30th. This man said he had had a high fever at the boarding-house for three days previous to his admission to the hospital, and that it had then just gone off. He had had Chagres fever for four months, and his lungs were badly affected.

On the 29th, the day previous to the death of the latter, another of the same crew was brought into the hospital from the same boarding-house. He was in a dying condition—quite yellow, and with hemorrhage from the nose and mouth. Three hours after admission he threw up black vomit, and died the next day, the 30th. This was the second case regularly diagnosed and entered as *febris flava*—the one of the 29th of May being the first.

No other case occurred nor was received in the hospital until the 9th of September, when W. Carr, the man mentioned as having entered on the 25th of August and recovered, was taken ill with unmistakable yellow fever, showing that his first attack was only a return of the old Chagres fever. He recovered; but on the 11th another yellow-fever case was admitted from without, and from that time the disease, which had been in the city, to some extent, since the 13th of August, became a regular epidemic.

The total number of cases in the city, exclusive of the hospital, is set down at 225, with 55 deaths, being a mortality of nearly 25 per cent. Of those admitted to hospital, there were, from the 22d of August to the

10th of December, a total of 51 yellow-fever patients, including 36 merchant sailors, 12 county, 1 city, and 2 private patients. Of these, 10 died. But among the latter, it must be recollected are two cases not known or treated as yellow fever, and only thus classed after death; and four of the others, viz., one county patient and three sailors, were admitted in a dying condition, surviving only from about twenty-four to thirty-six hours, having previously been sick and without medical attendance for from five to seven days.

Of those admitted within the first forty-eight hours there were forty-three, with two deaths—one sailor and one private patient. Both were on heavy sprees when taken, and the lungs of the latter were affected. The former was perfectly sound in that respect, but was admitted to the hospital for scurvy six days previous to the manifestation of the fever; but the case was not a bad one, and, had it not been for the whiskey, might, I think, have resulted favorably. Six days after seizure he died from constant vomiting, as his stomach could not be quieted. He had suppression of urine during the last twelve hours.

The above mortality is not quite 5 per cent. But taking the total number of deaths, ten, and the total number of cases, fifty-one, it gives not quite 20 per cent., against nearly 25 per cent. for the private practice of the city, and, hence, compares very favorably with it, and also with that of the navy yard, which I have not been able to obtain, but where, I know, the mortality was very great.

From the 30th of August to the 9th of October there was no death in hospital, (fifty days.) On the 9th a man admitted on the evening of the 7th, in a semi-comatose state, died. He had been sick five days previous to entering the hospital, and is counted in the four already mentioned as hopelessly ill when admitted. Of the two other cases, which terminated fatally, one entered late on the third and the other on the fourth day after seizure. The clerk who died in hospital on the 12th was taken sick on the evening of the 8th, and received into hospital, at the earnest solicitation of his employer, at midday on the 9th. In consequence of his diseased lungs, and of his having been on a spree for a week, the family physician of the gentleman in whose house he was staying considered his case hopeless, and advised that admission should be obtained for him, if possible, to the hospital. The other private patient recovered. He was a bar-tender, and a regular drinker, but did not go on sprees, and was in other respects sound.

In summing up, the following is the result: Fifty-one cases received; forty-one recoveries, and ten deaths. Of the latter, two received in the beginning of the epidemic were not treated for yellow fever, nor its

presence suspected until within the last thirty-six hours; one entered in the calm stage, after the fever had passed off; the fever continued five days in the other case; four were received in a dying condition, and so reported; two received shortly after the fever had passed off, on the third and fourth days; and two treated from or near the inception of the fever, both hard drinkers, the one consumptive, and the other under treatment for scurvy.

The last deaths from yellow fever occurred on the 1st of December. One was of a man admitted from a vessel on the 27th of November—on the third day of his illness, just after the fever had passed off. The other was admitted moribund, on the evening of the 30th of November. He was brought from a sailors' boarding-house, in which he had been sick for more than a week, and he, and the one mentioned above, both, died on the 1st instant of black vomit. These cases are included in the ten deaths already specified.

I would suggest that, when sailors are kept on board ship or in a boarding-house for forty-eight hours after being taken sick, they be treated in those places, instead of being removed to the hospital, and that all expenses, including burial, in case of death, be borne by the captain, or the keeper of the establishment, as the case may be.

After an experience of three epidemics, viz., those of 1867, 1873, and 1874, I am of the opinion that the mortality of yellow fever need not necessarily, when the patient is seen within the first thirty-six hours, exceed ten per cent. for hospital and five per cent. for civil practice. The peculiarities of this last epidemic were, the strong typhoid tendency, and the inability of the patient to stand medicine of any kind. The bowels were usually constipated, but could be much more readily moved than is generally the case in yellow fever, and when so moved had a tendency to run off, and cause the patient to sink from prostration. Such patients usually died suddenly, without black vomit, and with little discoloration of the skin. When this looseness was checked, after a day or so suppression of urine usually supervened, and death by black vomit ensued. When looseness of bowels came on two or three days after the fever had passed off, the patient generally went into a low typhoid condition, with dry tongue, heavily coated and incrustated, and with the usual symptoms of regular typhoid fever; and upon being treated for that disease, in all my cases, they recovered.

The course adopted was to move the bowels, if at all, on the first day, with an enema of soap, molasses, salt, and warm water. But if the patient was not received until after the first twenty-four hours, the bowels were not interfered with until the sixth or seventh day,

when they were unloaded by the specified enema. Usually some laxative had been taken previous to admission, so that it was seldom necessary to order anything at that time. I always directed the use of a bed-pan up to the eighth or tenth day, in order to prevent the patient from rising or being exposed while sweating. A hot mustard foot-bath was given in the beginning, and by each bed was kept a pan containing broken ice and a pitcher of ice water, so that the patient, if neglected by his attendant, could reach them, night and day. No medicine was given, except in a few cases, in which oil was in the beginning administered. For suppression of urine, turpentine was applied over the region of the kidneys. I have seldom known it fail to act, even in cases that terminated fatally; but it was usually not so efficient when the end was only a few hours off.

On the fourth or fifth day, according to circumstances, nourishment was first given; very cautiously, in teaspoonful doses, every two hours for the first half day, and then every hour for the remainder of the day. If well borne, it was given at the same intervals in tablespoonful doses on the next day. I prefer beef tea made from Liebig's Extract.

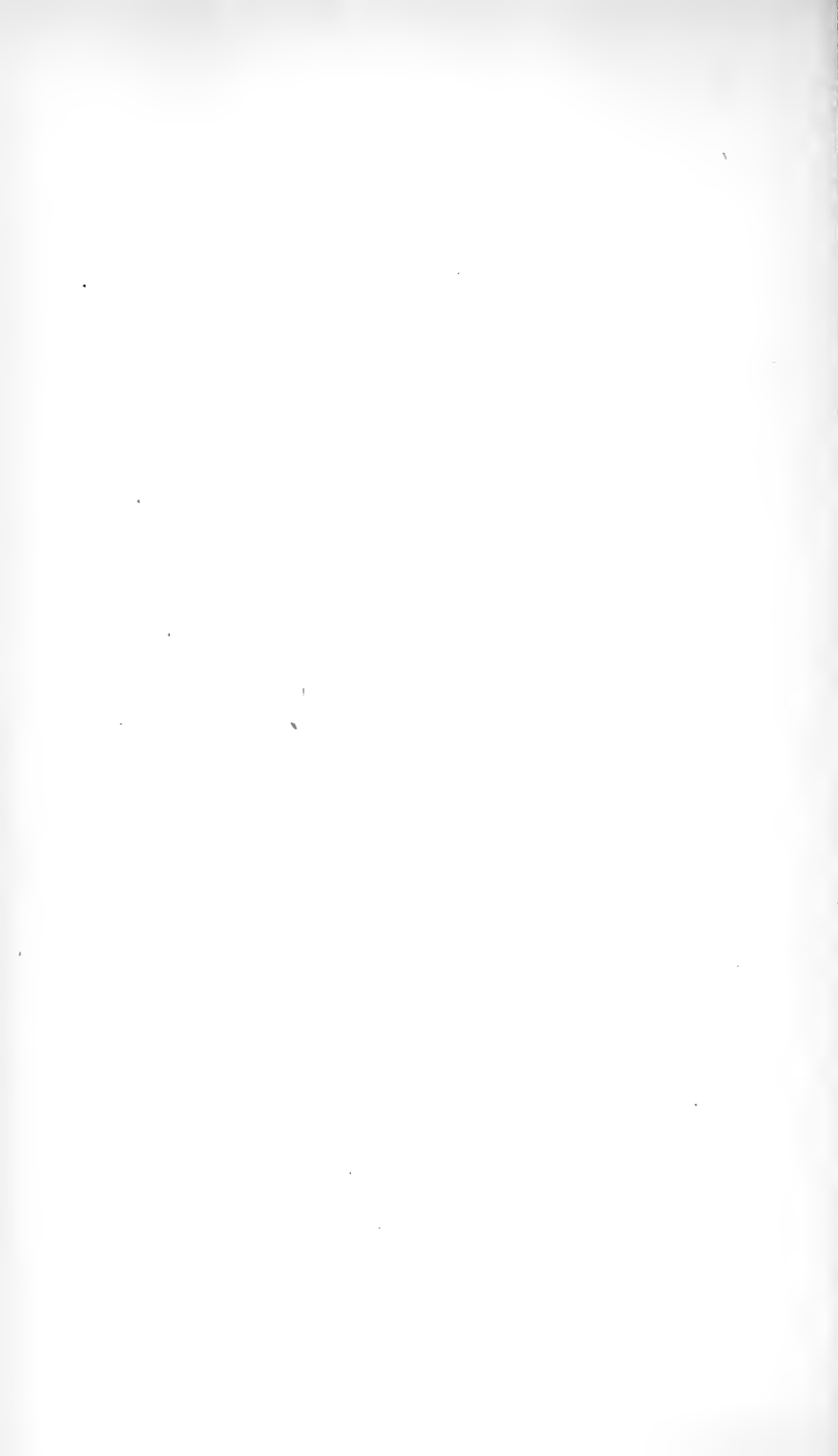
I did not, in this epidemic, as a rule, sweat the patient so profusely as ordinarily, on account of the depressing effect and strong typhoid tendency. There was also a tendency in this epidemic for the fever, if not treated well in the beginning, or if the patient acted with indiscretion, to continue until the fifth instead of terminating on the third day, as it should have done, thus lasting 120 instead of 72 hours, and in some cases without appreciable difference, while in others it seemed to rise and fall, and terminated at the end of that time either in death or convalescence. Quinine had no effect on the continuance of the fever in the only case in which it was exhibited, namely, the patient admitted in July as ill with Chagres fever.

Most of the patients on the third or fourth day were covered with an eruption resembling *lichen tropicus*, if not actually that affection, and convalescence was followed by desquamation of the cuticle. Boils were common, and large abscesses sometimes formed. In some, of gross habits, an eruption of small boils broke out on the forehead, and occasionally on other parts of the body. Parotitis, which occurred in some cases, only attacked one of my patients; it was quite extensive, but terminated favorably, without suppuration.

Yellow fever was introduced here by vessels from Cuba, and was propagated and disseminated by a worthless quarantine and the sailor's boarding-houses. At the latter men were kept without medical attendance until it was of little avail, and then sent to hospital at the very time when they should not have been moved.



THE YELLOW-FEVER EPIDEMIC OF 1873.



THE YELLOW-FEVER EPIDEMIC OF 1873.

BY FRANK W. REILLY, M. D.,
Surgeon United States Marine-Hospital Service.

ON the 15th of January, 1874, the following resolution was adopted by the Senate of the United States:

WHEREAS, Yellow fever has again prevailed during the past year as an epidemic of frightful severity in some of the cities and towns of the United States, paralyzing trade and commerce throughout large sections of country by impeding travel and menacing neighboring communities; and

Whereas, Many cities equally exposed with those which suffered most severely escaped with slight mortality, indicating that certain conditions and measures may control or arrest the spread of the epidemic; and

Whereas, The history of the disease tends to show that it is almost uniformly introduced into the United States by seamen already infected with the contagion, or arriving from ports where the disease exists; and

Whereas, The United States Marine-Hospital Service, through its medical officers at the ports where the epidemic prevailed, was enabled to become familiar with the course of the disease, the conditions favorable to its introduction and progress, and the measures which were successful in controlling or checking it; therefore

Resolved, That the Secretary of the Treasury be, and hereby is, directed to instruct the Supervising Surgeon of the Marine-Hospital Service to prepare or cause to be prepared, from the reports and observations of the marine-hospital surgeons, and from other available sources, a brief and succinct history of the yellow-fever epidemic of 1873 as it prevailed at the various ports of the United States, with especial reference to details of prevention and hygiene; and transmit the same to the Senate at the earliest day practicable.^(a)

In accordance with the foregoing, the Supervising Surgeon, on the 31st of March, detailed the writer to prepare the report therein called for, and suggested as subjects which should receive a thorough investigation—

I. The question of quarantine in connection with the following facts and statements concerning said epidemic: That yellow fever found its way by land into New York City from ports at which quarantine was not enforced, but, owing "to the efficiency of its board of health," the disease was confined to the imported cases, (*vide* Annual Report Super-

^aThis paper, which was laid before the Senate, March 12, 1875, and ordered to be printed, is included in the Supervising Surgeon's Report from the importance of the subject to Surgeons of the Service.

vising Surgeon, 1873, pp. 112, 113;) that no new fatal cases occurred among citizens after the establishment of quarantine at Cairo, Ill., (*ibid.*, pp. 108, 109;) that, notwithstanding quarantine regulations at New Orleans, there continued to be "repeated new importations" of the disease during the yellow-fever season, and yet the disease "showed no disposition to spread," (*ibid.*, p. 103;) and that at Pensacola the introduction of the disease—the first case occurring August 2—is attributed to a vessel, the *Golden Dream*, which arrived from Havana June 10, and was quarantined twenty-four days, during which time it is to be presumed she was thoroughly disinfected.

II. The question of sanitation, in view of the substantial immunity of Mobile and New Orleans as compared with Memphis and Shreveport; and in this connection the testimony of the profession concerning the alleged prophylactic value of carbolic acid and other disinfectants.

Falling far short of the possible results foreshadowed in these suggestions, the following report is submitted with the consciousness that at least one element of weakness has been studiously avoided, namely, the search for facts to support, to the ignoring of such as might militate against, any preconceived theory of the disease.

THE LESSON OF THE EPIDEMIC.

To repeat the thrice-told tale of how yellow fever appeared first on such a day in such a locality, and thence, unstayed by any known action of man, spread and rioted throughout a given city, until, either from lack of suitable pabulum or from the advent of cold weather, it gradually died out; merely to rehearse the more or less conflicting statements and opinions concerning its origin, nature, causes, and modes of propagation; and to sum up the totals of cases and the totals of deaths, and the percentages and the averages—to do this might be "to prepare a brief and succinct history of the yellow-fever epidemic of 1873." And if to this were added descriptions of the varying sanitary or insanitary conditions of the towns and cities visited by the disease, and of the "details of prevention and hygiene" adopted or neglected at each—the whole garnished and padded, *more consueto*, with references and extracts from the earliest writers down to those of the present day—the letter, at least, of the Senate resolution would be fully complied with.

It is doubtful, however, whether such perfunctory performance, while it might result in a voluminous and imposing-looking report, would add anything of real value to the stock of human knowledge; for it may as well be admitted at the outset that absolutely nothing has been

learned of the cause of the disease; that the question of its autochthonous origin or its uniform importation into the Gulf States from adjacent countries possessing substantially the same climatic conditions, is still unsettled; that specific modes of prevention and of limitation remain as vague and inept; that medical skill is as baffled, and medical opinion as confused and conflicting, as in the days of Benjamin Rush and his critics. The questions propounded by the Supervising Surgeon in his annual report are yet unanswered: How far carbolic disinfection may be accredited with the jugulation of the threatened epidemic at New Orleans and Mobile; to what extent thorough or defective sanitary measures affect the progress of the disease in the light of the experience of those cities as compared with Memphis and Shreveport; what is proper quarantine for yellow fever at various ports, and what is the true scope, function, and value of quarantine; can a quarantine be effective which does not embrace "commerce with foreign nations and among the several States" by land as well as by water?—to none of these have satisfactory answers been returned.

Volumes, it is true, have been written in the attempt to answer them; but the answers are mainly based on hypotheses, and for every volume sustaining a given theory you shall find two assailing it; for every array of "facts," on the one side, you shall have an equally unsubstantial phalanx set over against it. The disease is a veritable *crux medicorum*; and while, on the one hand, Warren Stone thus sums up the value of experience: Those know most about yellow fever who have seen least of it—an epigram which is both a confession and a satire; on the other, a no less eminent physician thus pronounces upon the utility of book-knowledge: With regard to yellow fever in particular there is no impropriety in reading as much as one pleases, provided he never has to treat a case; but that physician who has acquired his knowledge of this disease from books is more dangerous to his patients than the disease itself. Having witnessed two severe epidemics of the disease prior to 1873, as well as a few cases in the latter year; having waded through a goodly library on the subject; and having listened to the recital of the personal experience and opinions of several score observers, the reporter is prepared to admit the substantial truth of both dicta and to be thereby reconciled to the brevity and the barrenness of his own contribution.

And yet this jejune and negative result may after all possess some value; for, though as to the story of the disease in general and of this epidemic in particular, he might say, with Canning's needy knife-grinder, that he had none to tell, there may be some good gained even

through these negations; a good of wider application and more valuable than the discovery of any mode of prevention or of cure limited to this individual disease alone; of wider application and of greater value, inasmuch as it pertains to the prevention of all disease and to the protection of the health of the whole people. To illustrate: The year 1873 was characterized in the United States by the conjoint occurrence of two diseases which are invested—by tradition, by a certain mystery which surrounds them, by the futility of medical skill in their presence—with an importance beyond any other diseases which, in modern times, afflict mankind. Their advent is the signal for profound and widespread alarm; during their reign intercourse is suspended, commerce and industry stand paralyzed, grass grows in the market-places, and the public revenues shrink and dwindle. And yet the result of the simultaneous prevalence of yellow fever and cholera in the United States during the year 1873 was an aggregate of less than 8,000 deaths in a total mortality from all causes of over half a million.

From the date of the first case, May 23, to the date of the last case, December 29, 1873, there occurred 3,397 deaths from specific or epidemic yellow fever. During the same period each year there occur from the group of malarial fevers an aggregate of 9,200 deaths.

From the 9th day of February, 1873, until the 16th of October of the same year, the dates of the first and last cases of the disease, there occurred 3,825 deaths from malignant or epidemic cholera. During the same period each year there occur, in round numbers, 20,000 deaths from diarrhœa, dysentery, and cholera infantum.

The last preceding epidemic appearance of yellow fever was in 1867, and from its subsidence up to the close of 1872 there had been an aggregate of 970 deaths from this cause; but during the same period there had been an aggregate of over 50,000 deaths from the malarial fevers.

There had been no epidemic cholera in the country for the six years previous; but during that period the group of diseases most resembling it had carried off not less than 125,000 persons.

And, year by year, such more or less preventable diseases as small-pox, scarlet fever, typhus, enteric fever, and consumption, are the causes of a tolerably constant average of over one hundred thousand deaths per annum.^(a)

It is not intended to urge from this that the comparative indifference to the causes of this greater and constant mortality, or the interest,

^a These figures, except for yellow fever and cholera, are based upon the special tables of mortality in the Vital Statistics of the IXth Census. They do not pretend to absolute accuracy, in fact are known to be under-statements, but are sufficiently correct for the illustration, and their source is readily accessible.

the concern, the unreasoning fear, with which a rare access of cholera or an occasional visitation of yellow fever are always regarded, are in the one case misplaced, or in the other groundless and inexplicable—certainly not the latter, for it is the unusual which arouses attention, the mysterious which excites awe, the unknown before which reason abdicates. And precisely because the occurrence of these diseases is unusual; because their origin, nature, and progress are still largely veiled in mystery; because some of the most important laws which govern them are yet unknown—it is through these attributes that they inspire terror, throw communities into panic, give birth to commissions and conferences, reports and investigations, quarantine laws and interdicts, and unnumbered other fruitless, and not always harmless, offspring.

But such a comparison serves to point and mordicate the only lesson taught by the history of the late epidemic of yellow fever, viz: That, in the present state of human knowledge, to the same agencies only can we look for the prevention and control of this disease that we know are efficient, to a greater or lesser extent, in the control and limitation of the causes of that other immensely greater and uniform loss of life above shown. Such agencies are summed up in two words: *General Sanitation*—in which are included thorough cleanliness, pure air, unpolluted water, wholesome food, and individual hygiene.

What these agencies have done to “stamp out,” by making impossible, the plagues and pestilences of a few years ago, they can do in large measure to avoid the very conditions necessary to the existence and spread of yellow fever. *Obsta principiis*, as a rule of action with this disease, is demonstrably impracticable, at least on our Gulf coast. There the beginnings cannot be resisted short of such a total isolation of the ports as the vigilance and authority of the Army and Navy combined have hitherto failed to effect. No partial exclusion will suffice to prevent an explosion when the mine is ready, as it was in Memphis and in Shreveport, for months before the spark was applied. And no multiplication of the spark will create an explosion where the explosive elements are absent, as was abundantly proven at Mobile and at New Orleans.

No quarantine however rigid, no disinfection yet devised, no restriction at all compatible with commercial intercourse, can prevent the introduction of yellow-fever germs along the line of coast between Key West and Brownsville in a thousand unsuspected modes. Once introduced, no matter how, whether by petty smuggler or formally-cleared threemaster; by a United States mail steamer landing on a

New Orleans levee in the month of January the effects of a yellow-fever victim who died in Havana in the previous November; or a twenty-ton fruit boat stealing up a bayou to put ashore a deserting sailor, sole survivor of some fever-stricken ship which the next norther will send to the bottom to lay her bones beside the *Golden Dream*—once introduced into a community living under the tropicoid sun of a southern summer, with defective sewerage, imperfect scavenging, polluted water supply, neglected cloacæ, and, *invidia absit*, with the lowered moral as well as physical tone these conditions inevitably produce, an epidemic of yellow fever is no more to be wondered at than is any other natural result the effect of a sufficient cause.

Nor is it clear that in the end the ravages of a given epidemic disease materially swell the average death-rate of such a community; for if not by yellow fever, then by small-pox or diphtheria, by enteric or relapsing or cerebro-spinal fevers will the mortality rate be kept up, as it unmistakably is, in the absence of these, by the minor diseases, whose increased prevalence and gravity are due to the same insanitary conditions which are among the essential factors of an epidemic.

What is clear then, and what remains to profit from, as the lesson of the epidemic of 1873—emphasized by its manifold horrors, by its interruption to commerce and industry, by its individual sufferings and losses, by its widows and orphans and desolated homes—is, that it is not sufficient to guard and purge the outside of the vessel while leaving it full of all manner of corruption and uncleanness within; that to physical not less than to moral health a city's foes are those of her own households; that not what goes into the city is harmful so much as that which is begotten and bred within the city itself

And if this lesson be laid to heart, and through it sanitary effort—the modern “cheap defence of nations”—be stimulated; if boards of health be thence endowed with ampler powers and held to a more rigid accountability; if the individual, and the community, and the State, and the Nation shall learn that there is no vicarious atonement for sin against hygiene, no salvation, either through quarantine alone or disinfection alone or special prophylaxis alone, so sufficient but that the wages of such sin shall surely find the sinner out, if not in the stern, swift, and often merciful stroke of an epidemic, then in the frequent or prolonged suffering from other disease; and, beyond all and above all, if the public press—the later Hercules, already laboring more marvellously than its Augean prototype in sanitary interests—shall take the lesson and point its moral until all the people know that not only

individual but civic cleanliness is next to godliness, that for practical purposes, at least, disease is a unit, that the greater includes the lesser; and so, in the progress of preventive medicine and the resources of sanitary science, not alone yellow fever, but all disease shall be disarmed, health preserved, and life prolonged, then the failure to determine the specific *materia morbose* of this or that disease will be at least not an unmixed evil.

HISTORY OF THE EPIDEMIC.

In the following brief history of the epidemic the disease is followed step by step from its first appearance in the United States until its close, preserving the chronological rather than the geographical order for the purpose of showing, if possible, the modes in which the disease was introduced, or first manifested itself in localities where it subsequently spread. Localities where only an occasional case appeared—as of refugees, sailors, &c.—will be found mentioned in connection with the nearest epidemic centre. To this, however, the port of New York may be made an exception, because, although the disease was repeatedly introduced both in the harbor and the city, it fortunately gained no foothold. This port may, therefore, be mentioned separately and disposed of at the outset. There were here in all sixty-nine cases, of which sixty-two were removed from vessels arriving at quarantine, the first on May 23. The last case—that of a refugee from Memphis, who died in ambulance on his way to hospital October 30—was among the remaining number which complete the total of sixty-nine cases, of which eighteen died. Of this latter group of seven cases, one arrived, by the steamer *Yazoo* from New Orleans, at Philadelphia May 29; sickness had appeared on the ship May 27; the vessel was not quarantined; the patient, a waiter on the steamer, went to New York, arrived May 31, sick on his arrival; was taken to No. 7 Eldridge street, and died June 2. Three cases, of which two died, arrived on a schooner from New Orleans, and were treated by the Marine-Hospital Service, as was also the last of this group of cases, the engineer of the steamer *Metropolis*, who had been sick in New Orleans, disease not determined; arrived at New York September 22, entered hospital same day, and died on the 27th, of undoubted yellow fever, probably a relapse of the disease from which he suffered in New Orleans. Concerning the cases which reached New York despite the thorough and enlightened sanitary administration of the port, Surgeon Heber Smith, of the Marine-Hospital Service, remarks “that, so long as quarantine is a matter controlled by State caprice or fear, there is

nothing to prevent the introduction of this or any other disease into a community, no matter how rigid or perfect the quarantine of such community may be made—and its present administration at New York is both. That yellow fever failed to become epidemic in New York the past season, that it is not epidemic every season, is due probably, first, to the want of favoring conditions in the season itself, and, second, to the efficiency of its board of health; but certainly not to the want of a supply of fomites furnished by land from other ports.”

New Orleans: July 4—November 18.

The first case of yellow fever as an epidemic in 1873, occurred on the 4th of July, in the city of New Orleans; but whether from indigenous causes, or from germs surviving from the previous season, or from germs freshly imported from Cuba, is a matter of doubt. As curiously illustrating the difficulties which attend an *ex post facto* investigation into the origin and progress of an epidemic disease, it may be worth while to collate the various official statements concerning this case. José Maria Arua, mate of the Spanish bark *Valparaiso*, then lying at Pier No. 48, in the Fourth District, two miles above the business centre of the city, was taken sick on the 4th day of July, and, after being treated two days on the ship, was carried down to the Third District, a distance of three miles, where he died two days after. The accounts agree that this vessel left Havana in ballast, with a clean bill of health; that she arrived on the 24th of June at the Mississippi Quarantine Station, seventy-five miles (or from sixteen to twenty hours in point of time) below New Orleans, and that the mate fell sick and died as above related. But here all harmony of statement ends.

Dr. C. B. White, President of the Board of Health, in his Annual Report to the General Assembly of Louisiana, 1873, (session of 1874,) page 18, says: “The *Valparaiso* appeared at the Mississippi Quarantine Station June 24th, eight days from Havana. On the 26th, [a] no cases of yellow fever having occurred on board since leaving port, she was allowed to come to the city.”

The Secretary to the Board of Health, in his official report to its President, loc. cit., p. 47, says: “This bark [the *Valparaiso*] left Havana June 15th, [b] in ballast, and arrived at Quarantine Station on the Mississippi river, June 24th, and was detained there two days, [c] after which she was released and permitted to come to the city, arriving June 26th.” [a’]

Surgeon Orsamus Smith, M.-H. S., in the Report of the Supervising Surgeon U. S. Marine-Hospital Service for 1873, p. 102, says: “I have the honor to state that the first ascertained cases of yellow fever

reported in the city were from the Spanish bark *Valparaiso* which arrived here from Havana in ballast, with five passengers, June 26, 1873, [*a''*,] having been detained at quarantine four or five days, [*d*; cf. *a* and *c*.]

Dr. Jerome Cochran, Professor of Public Hygiene, &c., Medical College of Alabama, in the Transactions of the Alabama State Medical Society, for 1873, p. 114, says: "The *Valparaiso* left Havana on the 15th of June, [*b'*,] in ballast, with twenty-one souls on board, all in good health. She arrived at the Mississippi Quarantine Station, below New Orleans, on the 24th of June, and was detained there for three full days, [*e*; cf. *a*, *c*, and *d*.] * * * * She arrived on the 26th or 27th of June, [*f*; cf. *a*, *a'*, *a''*,] and was docked at pier 48," &c.

Dr. S. C. Russell, in a paper entitled *Some account of yellow fever as it appeared in New Orleans in 1873*, published in the first volume of Public Health Reports and Papers of the American Public Health Association, 1874, p. 430, says: "This bark left Havana June 16th [*g*; cf. *b*, *b'*] of the present year, in ballast, and arrived at the Quarantine Station, on the Mississippi River, June 24, and was detained there three days, [*e'*; cf. *a*, *c*, and *d*,] after which she was released and permitted to come to the city, arriving June 26, [*a'''*]." He also furnishes—in the same paper, p. 430—a letter from Dr. George Howe, Resident Physician at the Quarantine Station, under date of October 12, 1873, in which Dr. Howe says: "The bark *Valparaiso*, 'Spanish flag,' left Havana on the morning of June 16, 1873, [*g'*; cf. *b*, *b'*, and *g*,] for New Orleans with nineteen crew and five sailors, who worked their passage here. Arrived at Quarantine Station June 24, P. M. All well. Notified the captain, Rosas, that two-and-a-half days' quarantine were required to complete the ten days required by law. She did not get off until seventy-two hours after arrival, [*e''*; cf. *a*, *c*, and *d*,] the tow-boat being detained below."

In an appended statement to Dr. Russell's paper, loc. cit., p. 434, Dr. A. W. Perry, Sanitary Inspector to the Board of Health, says the *Valparaiso* "left Havana in ballast June 16, [*g''*; cf. *b*, *b'*, *g*, and *g'*,] and arrived at the Quarantine Station below the city June 24. After a detention of two days [*c'*; cf. *a*, *c*, *d*, and *d'*] the vessel arrived in the city and was moored at Post No. 48, at the foot of Second street."

These various statements are given in the order of their public appearance, and it is only necessary to add, in proof of the assertion that nothing concerning the origin of the disease has been settled by the history of this epidemic, the following extract from the report already quoted: ^(a)

^a Annual Report of the Board of Health to the General Assembly of Louisiana, 1873, p. 54.

It is reported that four deaths from yellow fever occurred on the *Ada Oulton* when off the Tortugas, July 18 and 20. The *Ada Oulton* left New Orleans the day Arua died, July 8. She lay at or near the same pier as did the *Valparaiso*. If so, did the *Ada Oulton* get her fever from the *Valparaiso*, or did the germs under or about the wharves affect both ships alike? Might it not have found a suitable nidus under the wharf, where, under favorable circumstances, it manifested itself on nearly every ship or boat of that locality? The weather was at that time extremely warm and favorable to the propagation of the disease. It may be mentioned here that the fever broke out last season four squares from where the *Valparaiso* lay this year, and then there was not the slightest evidence of importation; in fact, the first case of 1872 was positively known to have been sporadic, yet there were thirty-nine deaths following it during the season.

It may also be "mentioned" that in 1871 the disease occurred in, and was almost wholly confined to, the same locality; and that there is not only no evidence of the importation of the disease during that year, but the facts connected with the outbreak of the local epidemic of 1871 indicate a very plausible explanation of the origin of the epidemic of 1873. In the former year a homeless vagabond—"without occupation, sleeping about the elevator wharf and drinking all the liquor he could pay for or get upon credit" for a month or so previous to his attack—was received into the Charity Hospital on the 4th of August, where he died the same night of yellow fever with black vomit. For some four nights previous he had been sleeping about the bark *Mary Pratt*, from Cienfuegos, which was discharging sugar into the elevator warehouse. She had brought a clean bill of health to the Quarantine Station, and having no sickness on board on her arrival, was allowed to come up to the city. After her hatches were opened and she had commenced discharging cargo, this man, Collinberg, slept on board and was taken sick. The vessel was then sent to the quarantine ground to be disinfected, at the discretion of the resident physician. August 10 she was released from quarantine, and returning to the city was laid to the wharf at the foot of Terpsichore street on the 13th. On the 23d, George M. Moussé was employed as her steward, and began work on board, cleaning up the cabin, which was reported to be in a very filthy state; was taken sick with yellow fever on the 29th, removed to the Hotel Dieu on September 4th, and died on September 5th. On the day of his death, a tailor working and residing on Tchoupitoulas street, between Robin and Race—the first and second streets above that at the foot of which lay the *Mary Pratt*—was taken ill and died of the fever, and this vicinity soon became the centre of an infected locality.

The point here sought to be made is, that, notwithstanding quaran-

tine precautions, a vessel arriving during the hot weather from a West Indian or tropical port, although apparently entirely free from disease, and though subjected to the usual processes of disinfection, may, under the semi-tropical sun of a New Orleans summer, develop, from the contents of her hold, as malignant a type of yellow fever as she would have done in the harbors of Vera Cruz or Havana; and that, as yet, the problem of dealing with such sources of yellow-fever importation is not solved.

The next pronounced case of the disease in 1873 occurred on the steamer *Belle Lee*, which lay about one hundred feet from the *Valparaiso*; and this steamer, being ordered from her wharf by the sanitary authorities, was taken to the lower portion of the Sixth District, where she established a new focus of infection, from which resulted thirty-seven cases and twenty-five deaths. During July there were eight cases of the disease, including the two first mentioned, of which five died. Vessels berthed in the vicinity of the *Valparaiso* during the months of August, September, and October, became infected, and, on being removed, established new foci for the spread of the disease. During August there were forty cases, with twenty-nine deaths; during September, one hundred and eighty-three cases, with one hundred and eight deaths; during October, one hundred and thirty-five cases, with seventy deaths; and during November, twenty-two cases, with fourteen deaths; making a total of three hundred and eighty-eight cases and two hundred and twenty-six deaths—a mortality of over fifty-eight per cent.

Dating from the labors of the Sanitary Commission of 1854, there has been a steady improvement in the sanitary condition of New Orleans. For nearly half a century previous, the mortality rate had been nearly six per cent. per annum. The death rate of the city during the year 1873 was 3.7 per cent.; certainly not a very high ratio of mortality in the presence of three such diseases as cholera, small-pox, and yellow fever. The region in the rear of the city, between it and Lake Pontchartrain, has been drained and cultivated, and the suburbs generally are in better condition. During the military occupation of the city—1862-'65—it is asserted that it enjoyed so efficient a sanitary police and sanitary regulations that so clean a city had never before been seen upon the continent, and efforts have not been wanting since to hold the advantage then gained.

To such causes and efforts, and to the vigilance of its Board of Health, the citizens of New Orleans may fairly attribute their escape from a widespread prevalence of the disease which, in its type, as

shown by the percentage of mortality and its ravages in the cities of Shreveport and Memphis, was much more malignant than usual. Hampered by financial embarrassments, by inadequate legal authority, and by political emergencies which deprived them of a large part of their working force; and threatened during the year by "the three most universally dreaded and fatal diseases which afflict mankind, small-pox, cholera, and yellow fever," Dr. White and his assistants, with an energy and persistence nothing less than heroic under the circumstances, spared no effort, with the means at their command, to place the city in the best condition to meet the attacks. Upon their specific measures of dealing with yellow fever, no verdict can yet be pronounced. It is believed that never before had disinfection on so extensive a scale been resorted to as by this Board during the summer of 1873. It was begun during the first week in August by the use of crude carbolic acid, which was sprinkled by hand-sprinkling pots to the extent of about twenty gallons to every hundred square yards, and this was repeated several times at intervals of from five to ten days. Concerning the value of this disinfection, Sanitary Inspector A. W. Perry, in a communication to the New Orleans Medical and Surgical Journal for November, says: "To ascertain whether or not the small number of subsequent cases [in infected districts] was because of the small number of persons liable to yellow fever who lived in these squares, a census was taken of the total population of each square, and also of the white persons who had come to the city since 1867, the last epidemic year. In thirty squares, in which most of the yellow-fever cases occurred, the total population was 5,223, an average of one hundred and seventy-four per square; of these, 1,249 were liable to take yellow fever, being nearly twenty-four per cent. liable. Of the liable persons, 7.3 per cent. took the disease before disinfection, and .9 of one per cent. after disinfection." As an isolated fact, this is, as the Supervising Surgeon remarks, certainly very striking; but isolated facts are not conclusive, and this question is still open for investigation.^(a)

Pensacola: August 2—November 19.

No connection can be proved between the outbreaks of the disease in New Orleans and in Pensacola, where, in the early part of August, it next made its appearance. So much of the following as relates to the narrative of the epidemic of 1873, was personally verified by the reporter in the spring of 1874, during his visit to Pensacola; and the

^a Annual Report Supervising Surgeon United States Marine-Hospital Service, 1873, p. 103.

entire paper, which was prepared at the reporter's request, by Dr. James S. Herron, surgeon in charge of marine-hospital patients at Pensacola, is herewith presented as a most valuable contribution to the literature of yellow fever:

On the 10th of June, 1873, the British merchant-ship *Golden Dream* arrived at the port of Pensacola, from Havana, and was placed in quarantine. This vessel had lost eleven men while in the port of Havana, three *in transitu* from thence hither, and her entire crew are said to have been shipped from a yellow-fever hospital. She had several convalescing cases on board when she arrived here; but no case is reported as occurring while she remained in quarantine, which was until 3d of July, a period of twenty-three days. When released she came to Com-mandancia-street wharf and discharged some coal; and it is also stated that some of her remaining ballast was deposited at the shore end of this wharf. She afterwards dropped down for about half a mile below the city, and lay from five to six hundred yards off the shore, at the end of the Pèrdido Railroad wharf. At this point she was loaded and from thence went to sea on the 16th of August and was lost on the 30th of the same month. The first reported case of yellow fever in the city was that of Mrs. Pfeiffer, who died of black vomit on the 14th of August, and whose case was that evening reported to the mayor by the attending physician. Mrs. Pfeiffer's residence was about three hundred feet distant from the foot of the wharf at which the *Golden Dream* had landed her coal and left a part of her ballast. In a house two blocks northeast of the one occupied by Mrs. P., had died, on the 12th of August, a Mrs. Nasite, after an illness of seven days. This case was reported as "*pernicious fever*." Mrs N. had removed from New Orleans to Pensacola on the 22d of July, and she and Mrs. Pfeiffer are said to have visited. Before either of the above cases, viz., on the 5th of August, a sailor died on the *Golden Dream*. He was from the revenue-cutter *Petrel*; had been on board the former vessel eight days, and was taken sick on the 2d of August. At the request of the captain, an inquest was held on board, and, after an examination by the attending physician, a verdict of "death from intemperance and exposure" was rendered; but some of the crew subsequently stated that the man had thrown up black vomit.

On the 18th of August the second acknowledged case occurred, in the person of the Rev. Mr. Lundy, who resided on the hill in the extreme northeastern portion of the city. On the day mentioned, he died of black vomit, and probably contracted the disease in the course of his missionary labors among the seamen in the lower part of the city. On

the 18th of the same month I was called in by Dr. F. N. Blount, to see a suspicious case at the marine hospital. This man, Oxel Anderson, had entered the hospital on the 14th. I found him with constant hicough, which, Dr. Blount informed me, he had had for the three days previous, and, though naturally of fair complexion, his whole person was yellow. These symptoms were accompanied by a quite frequent spitting, or rather ejection, of blood from the mouth. I pronounced this a case of yellow fever, and recommended that the cot, together with its occupant, should immediately be removed to a separate ward, and a certain course of treatment adopted. This advice was promptly acted upon, and resulted in the subjugation of the hemorrhage and hicough and the recovery of the patient. This man was the first case treated at the marine hospital; though three days after the admittance of Oxel, another Anderson had entered the building, viz., on the afternoon of the 17th, and had died during the following night. I did not see him, as the coffin had been closed before I entered the hospital on the 18th. From this date until the night of the 27th there were from one to three cases a day in the city and vicinity. On that night a fire occurred on the northeast corner of Palafox street, opposite the custom-house, by which several stores were destroyed. The majority of citizens were drawn at midnight from their homes by this exciting event, and, as was generally predicted, the spread of the disease was from that period rapid and extensive.

On the 17th of August the first case occurred in Montgomery, Ala., in the persons of Mr. D. H. Cram and Mollie Jackson, parties recently from this city, the former having left here on the 14th and the latter on the 9th of that month. Mr. Cram's office was within a few yards of Mrs. Pfeiffer's residence, and he left for Montgomery just after her death. The house in which Mollie Jackson had lived was in the same block as the one in which the two Andersons had boarded, and her place was frequented by such characters. She, however, left the city five days before the death of the first reported case of fever, but not, as is now believed, before its existence. It is evident from the above that Mollie Jackson did not contract the disease from the marine hospital, as would be inferred from Dr. R. F. Michel's pamphlet on "Epidemic yellow fever in Montgomery, Ala., during the summer of 1873;" but on the contrary, that after her departure it was introduced from the city into the hospital by her associates. From the 14th until the end of the month there was a rush from the city into the country and to the villages along the line of the railroad up to the Junction, distant forty-four miles. At the latter place the first case was the wife of the

conductor of the passenger train, a lady who left town on the first alarm. From this source the disease spread at the Junction rapidly, as those who nursed or visited her were next attacked.

A. M. Hilliard, who was in the city on the 31st of August, was taken with the fever on the 9th of September, at Bluff Springs, thirty-nine miles distant, and also on the line of the railroad, as in the case at the Junction. The attendants and the other occupants of the house, with two exceptions, were the next sufferers. By them it was communicated to others, and thus spread. On the 22d of September, a young gentleman, who had been an almost daily visitor to the city, was taken ill at Oakfield, six miles off on the line of the railroad. Of the six other cases which afterward occurred there, four had not been in the city.

At the post hospital, Fort Barrancas, yellow fever first made its appearance on the 23d September, and the surgeon in charge, Dr. Sternberg, U. S. Army, in a letter to me, attributes its introduction to a barrel of potatoes brought over by the steamer *Amite* from New Orleans, and landed and taken to the hospital August 15, and there opened and spread on the floor of the storeroom. It is possible, however, that one of the first cases, a man named King, who had been on a drunken spree in the adjacent village of Warrington, may have come to Pensacola, or else been in the huts of negroes from here, and thus contracted and introduced the disease. From this time there were sporadic cases in the country and on the bay. The patients were persons who had visited the city, or received articles from it, or held some communication with it.

The first yellow-fever death was reported in Pensacola on the 14th of August, and the last on the 19th of November. The list numbers sixty-one; but it is highly probable that eight or nine other deaths, imputed to various causes, including those of the seamen on the *Golden Dream*, August 5, and Mrs. Nasite, August 14, were due to yellow fever.

In Montgomery, Ala., the first cases were reported on the 17th of August; the first death on the 27th of that month, and the last on the 10th of November. The total number of yellow-fever deaths, given in the Board of Health report, is eighty; but Dr. Michel thinks there were at least one hundred deaths, and gives the names of twenty-two others who were, he considers, its victims, and he estimates the total number of cases at five hundred. At the Junction there are said to have been twenty-two cases, almost the whole settlement, and the mortality was fourteen.

At Bluff Springs, a place of about two hundred inhabitants, there were nine deaths; and at Oakfield, of seven cases, six had professional

aid and recovered. The one that proved fatal had no medical attendance.

The above is a mere outline of the epidemic as it occurred here. It may now be interesting to consider other facts connected therewith.

Immediately on the breaking out of the fever in Pensacola, a rigid quarantine was established, by the military and naval authorities, of Fort Barrancas, the navy yard, and the villages of Warrington and Woolsey. A similar one was also maintained by the civil authorities of Millview, a village eight miles distant, built at the terminus of the Perdido railroad. With the exception of Barrancas, where the fever manifested itself on the 23d of September, all of the above-mentioned places escaped. The troops of Barrancas were, with the exception of about a dozen, instantly removed to Fort Pickens, on Santa Rosa Island, and not a case occurred among them. This corroborates the testimony of the medical officer at the navy yard during the epidemic of 1867, in which he says: "While the fever was raging at the navy yard and in the vicinity, the troops were removed from Barrancas to Pickens, the latter in full view, and only a mile distant; but, the men being completely isolated, not a case occurred there."

In this connection it will be well to mention some facts which appear to prove the infectious and portable nature of the disease, and that it can be communicated or introduced by clothing. On the 15th of November I was called in to see a young lady suffering from a violent attack of yellow fever. She had come in from the country about a week previous to that date, and two quite heavy frosts had occurred seven or eight days before she came to town. After reaching here she had assisted at the opening of a trunk containing the clothing of a man who had died of a very malignant attack of fever at an early period of the epidemic. Hers was the last death; it occurred during cold weather, on the 19th of November. A similar case has been related to me by Mrs. C. L. Le Baron, of this city, concerning the epidemic of 1822. Her father, Mr. Fitzsimmons, of Claiborne, Ala., hearing of the death of his brother at Pensacola, came here by private conveyance—at that time the only mode of transportation—and proceeded to administer on his estate. Among the effects was a trunk of clothes, said not to have been worn; but upon opening it, some articles the deceased had had on when the fatal illness seized him were found in it, and, although two heavy frosts had occurred before Mr. Fitzsimmons's arrival, he contracted the fever, and died, after an illness of four days; and from him the disease broke out afresh. A still more remarkable instance of the length of time the disease may

lie dormant, is one which was given me by the late Dr. John I. Hulse. A Mr. Lane was taken sick of yellow fever in September, 1853, at Dr. Fisher's, in Milton, Florida, thirty miles above Pensacola. His clothes were packed in a trunk, which was locked up and stored in a warehouse, where it was covered with old sails and sacks. Two years later, in the summer of 1855, it was removed from Milton to Brooklin, Alabama, distant forty or forty-five miles north, and was opened in a house there, in the presence of several persons. Soon after, five or six of the inmates of this house sickened, and some of them died of black vomit. I told this to Dr. Harvey Brown, U. S. A., as vouched for by Dr. Hulse, and he has mentioned it in his work on quarantine. For further evidence as to the infectious nature of clothing, bedding, &c., used by yellow-fever cases, see report of Surgeon J. F. Hammond, U. S. A., to the Surgeon General, in 1854, on the yellow fever at Barrancas, in the summer of 1853, and the circumstance of the mattress thrown overboard from the United States steamer *Vixen*, and picked up and used by a negro man, who shortly afterward died of black vomit, and the subsequent spreading of the disease from the negro quarters in which this took place.—(Medical Statistics United States Army, 1839 to 1855.)

I refer to the above-mentioned facts in consequence of their having been demonstrated in this vicinage. From the first yellow-fever epidemic at this place to that of 1873, we have, on each occasion, direct evidence of its introduction by an infected ship.

From the time the United States obtained possession of Florida to the present date, yellow fever appears five times to have assumed an epidemic form in this port, and, during that period, it has also several times been brought here, but failed to spread. I shall first enumerate the former cases. In 1822 it was imported by a schooner, sailing from the north to Cuba and from there to Pensacola, with a cargo of spoiled codfish, which was discharged at the wharf, hauled through the town, and thrown out on a common. The first case and victim was Madam Del Barco, who lived just opposite.

In 1853 it was introduced by the United States steamer *Vixen*, (see Dr. Hammond's report, referred to above;) in 1863, by United States storeship *Relief*, (see account by Surgeon B. F. Gibbs, U. S. N., in the American Journal of Medical Sciences for 1866;) in 1867, by the ship *Fair Wind* and the schooner *Texana*, the former from Jamaica and the latter from New Orleans; and, finally, in 1873, by the British ship *Golden Dream*, from Havana. I was in the last two epidemics as a practitioner, and in the one at the navy yard, in 1853, as a boy. With

regard to the instances when it was introduced here, but did not become pandemic, the most marked appears to be that of the French steam-frigate *Gomer*, in the summer of 1843. Surgeon S. P. Moore, U. S. A., writing from Fort Brown, Texas, in 1853, to the Surgeon General, says, page 356, Medical Statistics United States Army:

The question of contagion is a very important one, and has occupied the attention of physicians and philanthropists for a long period, without definitely settling it. There can be no hesitation in giving a decided opinion that it is not. The disease is of domestic origin. The arguments for contagion are opposed by facts. These are well known, and need not be stated. I may mention one instance: In 1842 or 1843, while stationed at Barrancas, Florida, the French steam-frigate *Gomer* arrived in the harbor of Pensacola, from a West India cruise, with the yellow fever on board. Permission was granted to the surgeon of the ship to occupy one end of the naval hospital. All the sick and convalescent were transferred to the hospital, and the other cases as they occurred on shipboard. The disease went through the ship's crew, yet not a single case appeared on land, although the hospital contained many patients from the home squadron. Our troops were encamped within 100 yards of these sick, and the inhabitants of the Barrancas living within striking distance. No effort was made to establish a system of quarantine with the sick or the ship. Frequent communication took place between the sailors and the landmen.

I have given this extract because it relates to this port, and also in order to correct some errors which, from the lapse of time, Dr. Moore has fallen into. In the first place, he is undecided as to date. The *Gomer* was here, with the fever on board, in 1843. And, secondly, he states that the sick from that frigate were put in one end of the naval hospital. Evidence here shows that they were lodged in a building on the same grounds as the naval hospital, but 150 feet northwest of it, and were attended solely by their own physician from the frigate. They were landed by the boats of the *Gomer* at the hospital wharf, and taken up the road on the east side of the hospital grounds, and in at the north gate, directly to the quarters assigned them. At that time, moreover, a dense woods of over half a mile in length separated the hospital from the navy yard, and a similar grove, a quarter of a mile in length, intervened between the above-mentioned road and the Barrancas. The army commandant's quarters, which were about 150 yards from the *Gomer's* yellow-fever hospital, was the nearest place to it. The encampment is laid down as being where the present barracks flag-staff stands, which placed the troops nearly three hundred yards off; besides, the hospital was surrounded by a fence ten or twelve feet in height, and no one was permitted to enter or leave the enclosure except on business. Even until 1850 the woods and undergrowth were so dense that a person standing by the hospital wall on the west

side, next the Barrancas, could not see the army buildings; and on that side there was no outlet except a small gate leading to the surgeon's quarters, through which none but officers and visitors to the surgeon's family passed. The present road in front of the hospital did not exist in the year 1843, but was cut out in 1850 by order of my father, the civil engineer-in-chief of the navy yard; and prior to the last-mentioned year the road from the yard was from the north instead of the west gate, as it is now, and wound to the north gate of the hospital through woods so dense that objects one hundred yards off were indiscernible, and one came on the Barrancas suddenly and without being aware of its vicinity. Without emphasizing the fact that the citizens and troops at Barrancas spoke a different language from that of the yellow-fever patients, they could not possibly have had any communication with those men, since a permit from Dr. Isaac Hulse, U. S. N., was required in order to enter or leave the enclosure. Besides, Dr. Moore does not state that he ever entered the grounds or visited the sick men. The residence of Dr. Hulse was within the enclosure and 200 feet from the yellow-fever quarters. His family and servants were natives of Pensacola, and this officer, in answering a letter addressed to him on the 9th of November, 1847, by "Monsieur Dubrueil, commandant-en-chef de le subdivision navale française, en station dans la Golfe du Mexique," thanking him for his treatment of French seamen from 1841 to that date, while admitting that he rendered medical service to the sick of two other vessels, viz., the *Sabine* and *Dunois*, expressly says that it is a mistake that he attended those of the *Gomer*. His exact words are as follows: "Hôpital maritime des États-Unis à Pensacola, le 11 decembre, 1847. On s'est trompé en supposant que je traitai les malades de la frégate à vapeur le *Gomer*; mais il est vrai que je traitai ceux de la *Sabine* et du *Dunois*." Supposing Dr. Moore to be correct, and that the patients from the *Gomer* were put in one end of the naval hospital, that wing being the one nearest to the quarters of Surgeon Isaac Hulse and to the Barrancas, but at the same distance from the latter, as the building which, according to the records, was assigned these men, it must be remembered that Dr. Hulse and his household were acclimated. With regard to the Army officers, it seems unlikely that they visited the place, being aware, as they were, of the presence of the disease. One wing of the naval hospital was isolated from the other, there being over 100 feet between them, which was filled up by a wide hall and a number of rooms; hence there must have been little, if any, intercourse between French and American sailors. Besides, when I was a student

of medicine under Surgeon G. B. B. Horner, U. S. N., in charge of that hospital in 1859, the men were not allowed to pass from one end to the other. Mrs. Hulse, widow of Surgeon Isaac Hulse, assures me that during the prevalence of the disease no one but her husband was permitted to visit the navy yard, and he only when business necessitated it. With regard to Dr. Moore's statement that no effort was made to establish a quarantine, his memory is either at fault or he is only referring to an Army one. I enclose you a copy of proceedings in this city :

CITY OF PENSACOLA, *Aldermen's Office.*

Whereas it has been represented to the mayor and board of aldermen that since their last meeting, which was called by his honor the mayor, to take into consideration what steps would be necessary to be taken to prevent the introduction of the yellow fever into the city, it having been communicated to his honor that some cases had occurred on board of the French steam-frigate *Gomer*, now lying at anchor in the bay ; and whereas it has been reported by the health officer that the number of cases have increased : Be it, therefore,

Resolved, That his honor the mayor cause the said steam frigate to be removed from her present station as near to the land on the opposite side of the bay as can be done with safety to her.

Be it further resolved, That none of the officers or men, nor any article of clothing, or anything else belonging to said frigate, be landed, nor shall any of their dead be buried within the limits of the city, until the further order of the mayor and aldermen of said city.

FCO. MORENO,
President pro tempore.

Passed August 12, 1843.

Approved August 12, 1843.

C. EVANS, *Mayor.*

MAYORALTY OF PENSACOLA, *August 13, 1843.*

SIR: In consequence of the sickness on board of His Majesty's steam-frigate *Gomer* having assumed a different aspect to that which was reasonably expected when I communicated with Commodore Regnard, on the 9th instant, the city authorities, at the earnest solicitation of the citizens, have deemed it prudent to establish a rigid quarantine from and after this date. So much of their resolutions and acts as relate to the said steam-frigate *Gomer* are herewith annexed. A strict compliance therewith is expected, without any unnecessary delay. All vessels arriving in future will be subjected to the same restrictions and regulations. You will be pleased to communicate this, together with the enclosed resolutions, to Commodore Regnard forthwith.

With sentiments of esteem, I have the honor to be, sir, very respectfully, your obedient servant,

C. EVANS, *Mayor.*

JOHN INNERARITY, Esq.,
His Majesty's Vice-Consul.

From the above it will be seen that Pensacola, at least, established and enforced a quarantine. The papers from which the above copies were made were recently given me by Mrs. Hulse, widow of Dr. H., and daughter of the above-addressed French vice-consul, Mr. Innerarity. Mrs. Hulse, besides, tells me that during the sickness a vessel from New Orleans came over with ladies and gentlemen, friends of the officers of the *Gomer*, on a visit to that ship, and that the party were not permitted to land, but were made to return as they had come. With respect to the military and naval reserves, if no formal quarantine was established, it is reasonable to infer that the numerous difficulties surrounding any wish on the part of the inhabitants to cultivate the acquaintance of the sick of the *Gomer* may have proved a most effectual quarantine. Difference of language, a full knowledge of the presence of a malignant disease, coupled with the fact that the Frenchmen were in a building 200 feet at its nearest point from the high fence which surrounded it, and that the gates of the latter were guarded night and day by vigilant watchmen, would prevent, in most cases, if not in all, any attempts at intimacy. I, for my part, consider these yellow-fever patients to have been almost as completely isolated as it was possible for them to be, and that no one was in any danger of contracting the disease but the attendants, and as these, from my information of the hospital arrangements during Dr. Hulse's administration, must have been Creole negroes from this city, a class generally exempt from yellow fever, the chances of its becoming epidemic seem to me to have been limited to a mere possibility.

I have given the above facts, obtained from Dr. Hulse's papers and other reliable sources, not from a desire to controvert or refute the opinion of Dr. Moore, but because, in the interest of humanity, I deem it important to show that, in the instance to which he alludes, and which seems to have strengthened a preconceived idea, important facts, from lapse of time, have escaped his memory, or else that, his mind being made up on the subject, he failed to notice any but the one, which he considered "confirmation strong as proof of Holy Writ" of his conception that yellow fever was not contagious or infectious. The latter is what I consider it. From the evidence produced, it seems sufficiently well established that there was no way, except the winds, of disseminating the disease among the troops at the Barrancas, and by reference to the accompanying map of the harbor, taken from United States Coast-Survey Charts and Land-Office maps, it will be seen that the building specified by me as the "French Yellow-Fever Hospital," otherwise known as ward No. 3, is there laid down by the coast-sur-

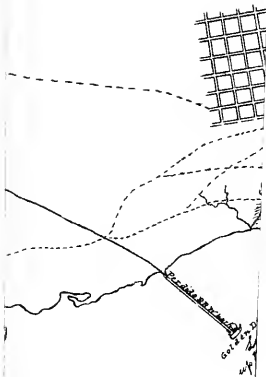
veyors. Now, by noting the direction of the winds which prevail here at that season, it will be seen that they are from the south and southwest, with an occasional norther late in the season, and that these winds would blow directly from or over the quarters of the naval surgeon, or the reverse, and not in the direction of the troops, who were further protected by the belt of thick woods mentioned before, and which, even in 1853, the fever did not cross until taken there from Warrington by a drunken soldier. See report of Surgeon J. F. Hammond, U. S. A., already alluded to, and also that of Surgeon B. F. Gibbs, U. S. N., for account of exemption of the same place during the epidemic of 1863. Dr. G. states there were a double line of pickets and absolute quarantine between the navy yard and the Barrancas, and that at the latter only two mild cases, late in the season, were reported. That there were any persons affected, I consider as proof that the quarantine was not so absolute as supposed, and, from my knowledge of the grounds as they were then and are now arranged, I regard it as almost impossible to enforce an absolute one, and that the only true way to accomplish it is the method of complete isolation, adopted by General Seymour in 1867 and by General Brannan in 1873, which was to remove the troops to Fort Pickens, on Santa Rosa Island. On both occasions this prompt action was attended by a fortunate result, and may be received as proof that the disease is not of domestic origin; otherwise, considering the topography of the two places, pestilence, it must be admitted, would be far more likely to generate at Pickens than at Barrancas. See also the report of one of the assistant surgeons stationed at the Pensacola navy yard in 1867, published in the Medical and Surgical Reporter, of Philadelphia, for March 14, 1868, in which mention is made of the yellow fever having in the first-named year extended to this "dense belt of woods, one-fourth of a mile through." I also desire to call attention to the report, before quoted from, of Surgeon S. P. Moore, from Fort Brown, Texas, in 1853. In regard to the fever there in that year, he says:

In the first part of the month, and before the appearance of the epidemic in town, a good deal of fever existed among the crew of the steamer *Comanche*, undergoing repairs at the mouth of the Rio Grande. This fever was called the dengue. Some deaths occurred. I do not know what physician attended these cases. No river communication existed between the steamer and the town; some two or three well persons came up to town by land.

The town here referred to, and adjoining the fort, is Brownsville, and Dr. M. says the first case occurred in the town (to which before its appearance there the well persons had come) on the 23d of August,

to m.c.

p1



MAP OF PENNSACOLA, FLA.

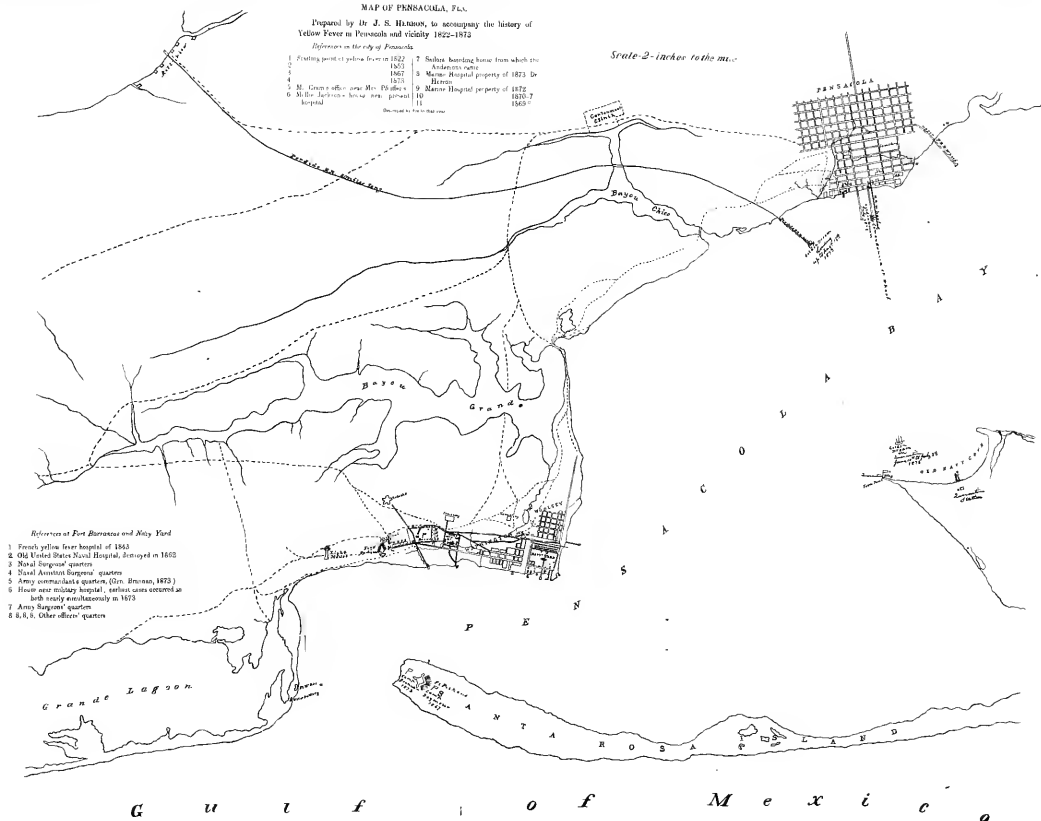
Prepared by Dr. J. S. HILKESON, to accompany the history of
Yellow Fever in Pensacola and vicinity 1822-1872

Reference to the map of Pensacola

- | | |
|--|--|
| 1 Floating point of yellow fever in 1822 | 7 School boarding house from which the |
| 2 1823 | Academy came |
| 3 1827 | 8 Major Hospital property of 1823 Dr |
| 4 1831 | Harris |
| 5 St. George's office near Mrs. Phillips | 9 Major Hospital property of 1872 |
| 6 St. George's house near Mrs. Phillips | 10 1857 |
| hospital | 11 1867 |

Illustrated by Dr. J. S. HILKESON

Scale 2-inches to the mile



Reference to the map of Pensacola

- 1 French yellow fever hospital of 1843
- 2 Old United States Naval Hospital, destroyed in 1863
- 3 Naval Surgeon's quarters
- 4 Naval Assistant Surgeon's quarters
- 5 Army commandant's quarters, (Dr. Brewster, 1822)
- 6 House near military hospital, earliest cases occurred as both early and late in 1823
- 7 Army Surgeon's quarters
- 8, 9, 10, 11 Other officers' quarters

and before there was any at the fort. Does this not seem to point to the steamer *Comanche* as the source? Attention is likewise called to report, in same work, page 323, of Assistant Surgeon R. F. Simpson, U. S. A., Key West Barracks, concerning the yellow fever there. He writes:

In August, 1853, two soldiers were sent to this garrison from Fort Brooke, Tampa. One died of yellow fever shortly after his arrival, and the other died of the same disease in September. The first case that I can hear of in town was a young lady, who came from Tallahassee; she died in November, 1853, and from that time till April, 1854, there were a few cases and some deaths. From April to August the disease became general.

Drs. Moore and Simpson both express belief in the domestic or local origin of the disease; and I have quoted from their reports, because I think they contain sufficiently strong evidence of the means by which it was imported. Again, by reference to the same authority, viz., Medical Statistics. U. S. A., 1839 to 1855, it will be found, on turning to page 335, that yellow fever was prevailing at Fort Brooke when the two soldiers left there for Key West Barracks, and it was also prevailing in Tallahassee in the summer of 1853.

In conclusion, I will state that my ideas in regard to the nature and origin of yellow fever have been so well expressed by Surgeon George M. Sternberg, U. S. A., in his article in the American Journal of the Medical Sciences (Hay's) for April, 1873, page 399, that I will simply copy them:

1st. The yellow-fever poison is not an emanation from the persons of those sick with the disease.

I must interrupt the quotation at this point to observe that while this hypothesis may possibly be correct, I am not prepared to assert it as a fact, but in all of the following opinions I fully concur. And now to resume:

2d. It is not generated by atmospheric or telluric influences. A certain elevation of temperature is, however, necessary for its multiplication, and its rapid increase is promoted by a moist atmosphere, and probably by the presence of decomposing organic matter.

3d. The poison is portable in ships, goods, clothing, &c., and a minute quantity is capable of giving rise to an extensive epidemic.

4th. Exposure to a temperature of 32° Fahrenheit completely destroys it.

5th. It may remain for an unknown length of time in a quiescent state, when not subjected to a freezing temperature or exposed to the conditions necessary to its multiplication, and may again become active and increase indefinitely when those conditions prevail.

6th. While liability to the disease and its severity when contracted depend, to a certain extent, upon age, sex, temperament, previous

habits, and acclimation, they also depend to a great extent upon the degree of concentration of the poison; that is to say, the larger the dose, the greater the possibility of an attack, and the greater its severity.

In coinciding with this statement, I wish it understood that I have only reference to the disease as it occurs in the United States. I was under the impression that it originated in New Orleans, until the contrary was proved, during the occupancy of that city by the United States troops during the late war. There is, I think, indubitable evidence to prove that yellow fever is a native of the tropics, and that its importation into the United States could be prevented by a strict quarantine; that is, total isolation. That such a system of isolation is effectual has, I think, been sufficiently illustrated by instances quoted in this article, and is, besides, abundantly proved by hundreds of others, recorded in the histories of the various yellow-fever epidemics in this country. In order to insure an effectual quarantine, the surgeon in charge should be an officer of the Army, Navy, or Marine-Hospital Service, the institution a Government one, and the occupant entirely removed from all political or local influences.^(a) To exemplify this, and for no other object than the public good, I will mention an occurrence of last year. On that occasion the contract for carrying provisions to the quarantine station was given to one of the chief stevedores here, and he and all his family were among the first who had the fever. The appointment of this person, living in the town, was opposed by the quarantine doctor; but he was overruled, and such influence brought to bear as secured the applicant's appointment. The same stevedore is this year an alderman, and, having less cause for personal dread of the fever, there is reason to fear that he may again aid in its introduction.^(b) I was, last year, twice offered the position of quarantine physician, but on both occasions declined. It is by no means an enviable position, as the doctor has to contend with interested merchants, ship-owners, and others, and, no matter what efforts he makes, he is always pronounced wrong.

It may be further remarked that the pay should be sufficiently liberal to command the services of efficient, competent, and incorruptible medical officers, and to make them independent of local influences.

In enumerating the yellow-fever epidemics in this section, I have omitted to mention a pestilence which prevailed in 1846, at the navy

^a The reporter's views concerning quarantine have already been sufficiently indicated; but the reader who is interested to know what "was proved" in New Orleans by the maintenance of quarantine through "the exercise of absolute and relentless military authority," is commended to a brochure by STANFORD E. CHAILLÉ, A. M., M. D., &c., entitled *The Yellow Fever, Sanitary Condition and Vital Statistics of New Orleans during its Military Occupation*.—R.

^b Dr. Herron's apprehension was justified in this case, and the person referred to was dismissed from the Board of Aldermen in June of 1874, and fined fifty dollars for violation of the quarantine regulations.—R.

yard and at Barrancas, because, though generally spoken of here as yellow fever, such was not the verdict of Surgeon Isaac Hulse, U. S. N., president of a board of physicians convened to investigate and report the nature of said fever, and composed of the following officers: Surgeons Terrill and Spencer, U. S. N., and Surgeon Stinneck, with Assistant Surgeons Abadie and Steiner, of the United States Army. The board convened at the United States naval hospital near Barrancas, in compliance with an order, dated September 28, 1846, from the Navy Department. The report was sent in on the 13th of November, and the board was dissolved by an order from Secretary Mason, December 2, same year. I have not been able to find this report; but it must be in the Naval Bureau. Dr. Hulse's notes, in the rough, apparently made for the benefit of the board, are, however, in my possession. In them he says the disease was not yellow fever, and ably argues the case, stating the difference of symptoms, and dwelling particularly on the fact that quinine was the only thing that could be relied on to check or control the disease, and that it has no such effects in yellow fever. Dr. Hulse had a high reputation in the service, and at this place, for skilful treatment of yellow fever, and I agree perfectly with him in regard to the use of quinine in the latter disease. I have never seen any benefit arise from it, except as a tonic sometimes when the patient was convalescing. The report of Dr. Abadie, U. S. A., in the Medical Statistics, U. S. A., from 1839 to 1855, page 335, exactly agrees with that of Dr. Hulse, as he simply calls it "A fever which prevailed at Barrancas Barracks in the summer of 1846," and it is not classed in that work as yellow fever. There is also a tradition here that the board reported that pestilence as a "mongrel fever, and not yellow fever." This testimony, I think, justifies its omission from the list. That sporadic cases of yellow fever have occurred here in the intervals of the various epidemics is well known, but most if not all these cases can be traced as having come off of vessels or from infected places.

I thoroughly believe that infected articles which have not been exposed to a freezing temperature can convey the disease from one season to another. I consider the most reliable method of disinfecting a ship is to batten down her hatches and reduce the temperature of her hold to 30° Fahrenheit, and to keep her in that condition for four or five days, so that the bilge-water may remain frozen for that length of time. No further danger need after that be apprehended, and any subsequent appearance of fever on board must arise from fresh exposure to its influences.

We do not find that vessels remaining here all summer, no matter

how dirty they may be, ever generate yellow fever. This only occurs with ships from latitudes below the region of frosts, and where this disease prevails for nearly the entire year.

With respect to the circumstances usually considered favorable to the propagation of yellow fever, I must say that last year presented, in my opinion, no remarkable variations from its predecessors. The average range of the thermometer, (in the shade,) as kept in this city, was just 80° for the summer, while in 1822 it was $82^{\circ}.75$, and in 1853 it was $80^{\circ}.76$, and the fall of rain for the latter year immensely less than for the preceding and succeeding ones. It was, in fact, a dry summer, the first copious rain being in September. It will be seen, on consulting the Medical Statistics of the United States Army, 1839 to 1855—for temperatures, page 531, and for rain-fall, page 572—that yellow fever prevailed in 1822, when the temperature was within one-half a degree of the highest recorded range, and last year at the lowest; and that from the warmest summer to the coolest the difference was only $3^{\circ}.25$, and the greatest difference between the epidemics, $2^{\circ}.75$. It has prevailed between these extremes, and may do so any summer, if introduced, as it is apparent from the above that the surroundings do not differ very materially, and that the fever has been epidemic when the weather was hot, when cool, when damp, and when comparatively dry; hence it seems conclusive that there are sufficient heat and moisture in all those temperatures to propagate the disease if the germ be supplied. It prevailed at Key West as an epidemic in 1854 as early as April, with the temperature $73^{\circ}.89$, (see Report of Dr. Simpson, United States Army Medical Statistics, &c.,) and at the Pensacola navy yard August, 1867, with the average for August of $83^{\circ}.9$. It will hence be seen that the difference of temperature between the outbreak of the fever at Key West in 1854 and those at the navy-yard in 1863 (see Surgeon Gibbs) and 1867 (Medical and Surgical Reports) was 10° on the days of its first manifestation at each place. This accounts for the opposite conclusions reached on this subject, and shows why some contend that a high range of temperature is required for an epidemic, while others assert a medium or low one is most favorable and necessary to it. Each argues from his own limited experience, and some are so positive and dictatorial in the maintenance of their own opinions as to permit the introduction of the disease into a place, or to deny its existence when really there, if the temperature or atmosphere does not support their peculiar views, and a pet theory is thereby in danger of being spoiled. Witness the cases of congestion and of pernicious fever reported in the beginning of nearly, if not all, epidemics, and then the

change after a case of black vomit, and the acknowledgment that some of the former cases were yellow fever. Yet if similar ones in every respect have occurred a month previous, they are not acknowledged as such. Facts are preferable to theories, and are, moreover, too stubborn to brook control.

If yellow fever gain access to three or four houses in the city, the surrounding circumstances are, I consider, sufficiently favorable any summer to cause its dissemination; and the instances frequently quoted here to prove the contrary are confined to individuals admitted to the marine or other hospitals during the course of the different summers. But when there was no case in the town—I am speaking now entirely of this place—I have yet to learn of a single instance in which yellow fever was introduced into Pensacola or any of the villages of this harbor from any of the hospitals, although patients suffering from that disease have been received therein and treated nearly every season. Last year the fever had broken out in the town some time previous to its introduction into the marine hospital, and quite a number of the first cases had been on board the infected ship, and thus brought it into the city. The same was the case in 1853, and also in 1867. Parties off of vessels were taken to private residences. And, once more, let it be noted, that in 1853 the troops at Barrancas did not contract the fever from the naval hospital, which was within 300 yards of them, and crowded with yellow-fever patients, but from a drunken soldier. (See report, already quoted, of Dr. J. F. Hammond, U. S. A.)

The city of Pensacola is situated on the north side of Pensacola bay, nine miles from the entrance, in latitude 30° 24' 36" north, longitude 87° 13' west, and with a gradual slope of from 5 or 8 feet at the shore to 20 feet a quarter of a mile back, where there are several hills which rise suddenly to a height of from 35 to 40 feet. For the first three blocks, the average height of the town is from 8 to 10 feet above tide-water, and for the next three there are spring branches and swampy ground, covered for about two-thirds of the surface with dogwood, bay, ti-ti,^a and various thick undergrowth. This is partially ditched and drained, but is so boggy during almost the entire year that plank walks have been laid in order to permit pedestrians to cross it, and the roads for vehicles have been ditched and covered with ballast to render them passable. Immediately above this, and six blocks from the water's edge, the ground, which is a dry, sandy ridge, is several feet higher;

^a Dr. H. mentioned to the reporter that where this ti-ti had been cleared away miasmatic diseases, previously unknown, became prevalent. The ti-ti is a woody shrub growing to the height of, perhaps, twelve to fifteen feet, and is covered during the flowering season with multitudes of a very odorous blossom. Coupled with Mantegazza's discovery of the ozoniferous properties of odorous plants, and the agency of the eucalyptus in reclaiming marshy fever regions, the ti-ti is worthy attention by the local sanitarians of the Gulf States.—R.

and here, for the next three or four blocks back, are to be found the residences of the majority of the more affluent citizens. Some of this class, however, have their homes in the swampy section, or in the business portion of the town. This latter comprises the first three blocks, to which the original city of Pensacola was limited in the old Spanish and English times. The outskirts of the swamps and the lower portions of the city are, for the most part, occupied by sailors' and stevedores' boarding-houses, drinking-saloons, negro huts, and dens of all sorts. This condition of affairs is not, however, of recent origin, and was no worse last year than at any other time; besides, the epidemic did not break out in these places, but in houses remarkable for cleanliness, but whose inmates had been exposed to the infection and were most susceptible to its influence.^(a) The fever, however, became very general before the end of the season. The water-side dens had less of it than elsewhere. I consider it probable, however, that most of their inmates had had it in some previous epidemic; for strangers, sailors and others, living there, were usually attacked. The swampy part of the city, which has been already described, is built on to quite a limited extent. It was in as good a condition last year as in any previous one, and it could have had nothing to do with the epidemic, since the first cases were below and one above its limits, and persons residing there were not more liable to be attacked than were those who lived in other portions of the city.

In regard to treatment, I have very little to add to what has been already written, but, as I have been quite successful in the last two epidemics, it may cause some slight desire to know the mode adopted. It is the simplest: When the patient is seen in the first stage during the fever, (in the first twelve hours, if possible,) I resort to a hot mustard bath, either a full bath or only to the knees, according to circumstances. The patient is then put in bed and well wrapped or covered with blankets, and supplied with ice-water and permitted to drink it *ad libitum*. If there be any irritability of the stomach, a mustard-plaster about the size of the palm of the hand is applied to the cardiac portion of the stomach, and, as it becomes uncomfortable, moved to another place, and so on around that organ, thus keeping up the action for an indefinite length of time. When the stomach is not too irritable, castor-oil or the *oleum ricini* capsules, are given by the mouth; otherwise an enema of *oleum ricini*, oz. ij; *oleum terebinthine*, gtt. xx; *vitel. unius ovi*; *aqua ferv.*, Oj,

^aThis cannot be held to weaken the argument against filth and uncleanness. The first case is proved to have been doubly exposed, first from the visits of a New Orleans refugee, and next from the fever-laden breath of the *Golden Dream*, the house lying in the direct course of the prevailing winds from that vessel. And so with the unfortunate sailors' missionary who was the next victim among the residents. He contracted the disease in their haunts.—R.

to be used and repeated until the actions are free. I generally find, however, that the *oleum ricini* is well borne by the stomach, and when the dose is large acts efficiently. If there be suppression of urine, a cloth (flannel is preferable) well soaked with *oleum terebinthinæ* is applied over the region of the kidneys; this application is repeated until the flow of urine is copious. It is usually brought on by this means in two or three hours, if not sooner. The hot bath is repeated, if at any time the perspiration becomes checked; so also are the mustard-plasters, if required for irritability of the stomach, or to act as revulsives or counter-irritants. The doors and windows are to be kept closed, and all draughts are to be avoided, and sudden changes of temperature are to be guarded against, as I believe, with Surgeon Gibbs, U. S. N., that a sudden change of temperature—he says of 5 degrees, I think of 8 or 10—will prove fatal. Draughts produce equally serious results when the patient is sweating profusely. When there is only one sick person in a room, I consider ample ventilation is afforded by the cracks of the doors and windows, and by the fire-place when there is one in the room; and I believe that that word “ventilation” has, in this disease, killed more persons than anything else, as all here understand it to mean that doors and windows are to be kept open, or partly so, day or night, south wind or northerers. The patient is seen at one time sweating profusely and much improved, and the next, after these “ventilations,” with a dry skin, delirious, trying to get up, or complaining bitterly of a return of the pains and aches, with a suppression of urine, or else comatose and in a state of congestion. I give, as before stated, ice-water, as cold as it can be made, and without stint, or small pieces of ice, as frequently as desired—that is, after the hot bath. It causes the perspiration to flow freely, besides producing it in much less time than when hot drinks are resorted to. It is, moreover, infinitely more grateful to the patient, and is a much more rational mode of treating and subduing inflammation, in which state the stomach is known to be. It is also well known to be acceptable in all fevers, and to have a tendency to alleviate them; it likewise soothes the irritability of the stomach and has a tendency to check hemorrhage and vomiting, while warm drinks frequently sicken, produce vomiting, and are not agreeable to the patient, and, I am confident, are the almost invariable cause of the patient's attempting to rise and go out in the air. What does he almost invariably attempt to do under this treatment? To rise and rush to the water-pitcher or ice, if there is any in the house; or, if he be delirious, he seeks to reach the bay or any other water that can be found. I have never had a patient to get

out of bed or attempt it, since, after the second case, in 1867, I adopted this treatment; and they do not become delirious. Though they complain bitterly of lying so long in bed, and ask to have their clothing changed, I never allow it until the eighth day, and then it must be done carefully, with all the doors closed, and the fresh clothing must be well dried. I permit them to turn freely in the bed, provided the covering is kept on and the perspiration is kept freely flowing, which is usually the case when the patient is well wrapped up and supplied with ice-water. The patient is given no food while the fever is on, and, in fact, seldom has any inclination for it. Ice-water suffices, and afterward a little lemonade, mint-water, or claret sangaree, all of them iced, are agreeable; or else a little tea and soda cracker may be given. I give the latter because it is light and so dry that they will seldom eat much of it. On the fourth or fifth day light chicken soup may be given, and by degrees stronger soups and better diet, as soft-boiled eggs, &c. I would dwell particularly on the necessity of keeping the patient in a recumbent position for at least seven or eight days, the perspiration freely flowing for three days, and a gentle sweating kept up for two more, or longer, as the case may require, and in no case to allow it to be suddenly checked, and to see that the urine is passed freely and that the bowels are open. On the seventh or eighth day, if the weather be favorable, open one of the southern doors or windows, and afterward, by degrees, the others, seeing that the patient is not in a draught. On the seventh, eighth, ninth, or tenth day, as the case may be, the patient, if otherwise doing well, is allowed to sit up. I usually visit him or her for a day or so longer, then dismiss the case. A tonic of quinine and iron is given after some of these cases, but the former is not prescribed at any other time, and calomel not at all.

It will be seen that my treatment is intended to combat the inflammation, reduce the fever, and cause the disease or poison to be eliminated by the skin and other emunctories. It is well known that it is by the skin principally that this is accomplished, and it is also well known that if a patient, while sweating, be exposed to a draught, congestion and delirium will ensue on the checking of the excretion; there will be suppression of urine, possibly also constipation, and death, either with or without black vomit. I will give an illustration of the effect produced on animals, in perfect health, by checking this elimination. It is to be found in the *The American Journal of the Medical Sciences*, (Hay's,) for April, 1873, page 527:

7. *Suppression of perspiration.*—Socoloff gives an abstract of the results which follow varnishing the skin and suppression of the cutaneous secretion.

1. A few hours before the death of the animals so treated, clonic and tetanic spasms appear in various groups of muscles, while the temperature in the rectum sinks in a marked degree.

2. Enveloping the animals in wadding did not seem to raise the temperature or arrest the fatal result.

3. Respiration of oxygen proved ineffectual to resuscitate the animals.

4. In the stomach ulcers were observed, the result of deep extravasations.

5. Albumen appeared in the urine very soon after the skin was varnished.

6. In all cases a diffuse parenchymatous inflammation of the kidneys was observed, sometimes swelling of the cells, and sometimes fatty degeneration. This result was independent of the nature of the varnish used, whether turpentine varnish, or gelatin, or gum. Lang (Arch. d. Heilkunde, XIII, pp. 277-287, 1872) investigates the cause of death when the skin has been varnished. In addition to other phenomena, he found an hour or two after death "triple phosphate crystals" in various parts of the body, and some of the uriniferous tubules blocked with a finely granular dark mass. He thinks that the triple phosphate crystals are the result of decomposition of urea, and the cause of death is uræmia.

I ask if the above symptoms are not the same in yellow fever when the perspiration is checked, and if it is not followed by suppression of urine, and the patient does not die with all the symptoms of uræmic poisoning. I will also state that it is important to relieve the patient's mind of all anxiety; to assure him of the very probable favorable termination of the disease, which will result on strict adherence to directions, and to impress the same on his relatives and attendants. I almost invariably repeated the directions every time I called, and warned the parties that, although they seemed trifling, they were, in reality, most important, and that everything depended on their strict observation. The doctor should sit down and talk to the sick person and his friends, and exhibit no alarm or concern, lest the patient become frightened. I usually tell them, "You are doing very well, and I shall almost certainly have you up in a week or eight days, if you will lie quietly and do what you are told." I, however, never trust them, but have always some one with them, a relative, if possible, as they are the best and most reliable nurses. Friends are too apt to consult their own comfort instead of the patient's welfare, and to open the doors and windows, and to indulge in all sorts of imprudent gossip, in stage whispers with each other concerning the progress of the epidemic, the last case of black vomit, and the similarity of symptoms between some person who has just died and the one they are nursing. And if you remonstrate with them, they answer: "O, he can't be frightened. You don't know him, doctor." Then they are frequently officious, and as soon as your back is turned, if you have

prescribed cold drinks, they substitute hot lemonade, because some other doctor, a friend of theirs, uses them, and perhaps throw open all the doors and windows, but when you return they are on the cold drinks again, and everything is fixed your way. It is important to treat, if possible, only one person in a room, as the depressing influence of a death in the same apartment is terrible. In hospital, I remove very bad cases, cot and all, into a separate ward; for the above has allusion almost entirely to private practice. The cases in hospital are usually of a worse type, the surrounding circumstances tending to make them so. They are soldiers, sailors, and paupers, and commonly, though not always, drunkards, and come in in the second stage, with little or no history, or in a state of congestion and comatose. These are the cases that swell the hospital's mortality, as they are generally past all human aid. By having a number of small separate wards for yellow-fever patients, so that they can be treated singly, and by careful attention and cheering them up, I think many might be saved who are now lost. Good nursing is nearly if not half the battle, and that is why I have devoted so much space to *minutiae*. The patient should never be told directly that he has yellow fever. I usually say, "Well, you have some fever; but if you follow directions all will go well," &c.; and on being asked by some if they had dengue, I replied, "Well, yes, it will pass for that," and then privately told the relatives or nurses to recollect that the patients had dengue just so long as they lay there and followed directions; but if they got up or committed any other imprudence, it would instantly become yellow fever, and *death* the probable result. This is usually effectual.

Memphis: August 10—November 19.

Small-pox, cerebro-spinal meningitis, and cholera had already prevailed in Memphis to an unusual extent during the year, prior to the arrival of the steam-tug *Bee* on the 10th of August. This boat left New Orleans, where she had been lying in the Fourth District in the neighborhood of the *Valparaiso* and the *Belle Lee*, on the 2d of August, and on her way up, at the mouth of the Red River, took on an old man named Davis, who had been in Texas, and on his way home to Alabama passed through Shreveport, La., but before the disease had made its appearance, or at least before it was recognized at that place. During the trip to Memphis this man, the captain, and several of the crew were attacked with what was regarded by three physicians, one each at Helena, Memphis, and Osceola, as "malignant bilious fever."—(Erskine.) On the arrival of the boat at Memphis, this

man and one of the deck-hands were put ashore very ill, unable to take care of themselves, and were cared for, the deck-hand in the house of a man named Riley, in Happy Hollow, near the landing, where he died within a few hours; and the passenger Davis, at the Adams-street station-house, where he was carried and died during the night. The next day the body of the captain was brought back from Osceola to Memphis, and lay uncoffined on the wharf for several hours, presenting all the appearance of a yellow-fever corpse.—(Thornton.) None of these cases were pronounced at the time to be yellow fever; nor even when Riley took sick and died a few days after, and then two women of his family, and one of his neighbors, was it supposed to be other than a malignant grade of bilious fever common to such a region as Happy Hollow, of which Dr. Erskine gives the following description:

What in Memphis is called Happy Hollow is a very low, flat area of about four acres, immediately on the river, near the northern limit of the city. It is under the Chickasaw Bluffs, so sunken that during high water it is largely submerged; but after the river has fallen it is left partially covered with stagnant ponds and slimy ooze, whose exhalations are noisome and offensive. Its soil is alluvial, and upon this garbage has been continuously thrown until it has become extremely filthy. It is the natural drain for the gutters of the over-hanging bluffs, through which sewerage steadily trickles. It is, in addition, the home of a low class of Irish, and the favorite landing place of flats and rafts, whose occupants are proverbial for their carelessness and uncleanness. During the hot summer months this accumulated mass of filth lies festering and rotting in the sun, exhaling mephitic gases, and only needing the germs of yellow fever to be sown upon it to yield the fearful fruits of a great epidemic.

The disease spread from house to house in this locality still without recognition of its true character. A Mr. Miller, owner of the Panola Oil Works, a large establishment situated within a stone's throw of Riley's house, and his book-keeper were taken sick on the 25th; Mr. Miller recovered, but his book-keeper died on the 29th. On the sixth day of sickness Mr. Miller was back at his office, not knowing that he had had yellow fever. Two more of his men fell sick. One came out after two or three days' sickness, to tell Mr. Miller not to have his place filled, and died two days after. Another came to the factory, after thirty-six or forty-eight hours' sickness, to draw six dollars which was due him; the next day he was dead. This shows how ignorant the people were about the nature of their malady.

Le Monnier, from whom the foregoing is quoted, makes the following comparison and deduction: "This place (Happy Hollow) receives the north wind in full, but in summer is deprived of the south wind, which

passes over it from the bluffs. It is not well ventilated, but is directly subject to the fogs of the Mississippi, which render its atmosphere more or less impure. In this hollow are also two or three large manufacturing factories which occasion more or less dirt. It, as also the northwestern portion of the town on the bluffs, is inhabited by the poor. Here was the quintessence of misery, agglomeration, dirt and filth. The Adams-street station-house, on the other hand, situated half a dozen squares southeast, in the city, is always kept in a good sanitary condition. It results from these two situations that the atmosphere of the former is more or less impure, that of the latter comparatively more or less pure. Now, two men were put off the tow-boat *Bee*—one was received in Riley's cabin, in Happy Hollow, the other was brought to the station-house; both died. Riley was a dissipated man, living in an unhealthy locality; he caught the fever and died. From this, it spread through Happy Hollow. At the station-house the men were more regular in their habits, in a healthy locality, and no new cases occurred after the death of the *Bee* invalid. A very important question here arises: Why did two men coming from the same place (New Orleans) die of yellow fever, one communicating the disease, the other not? I see no other reasonable answer to the question than that above given—salubrity *versus* insalubrity; regular habits *versus* irregular habits."

From this region, in which it spread block by block in the direction of the prevailing winds to the north and east, cases began to be carried into other portions of the city. On the 28th of August, a child, the sole survivor of one of the families in the neighborhood of Riley's house, at the foot of Market street, was admitted to St. Peter's Orphan Asylum; took sick on the 2d of September, and died on the 7th. For twenty-four hours previous to death the attending physician, Dr. G. B. Thornton, states that it had unmistakable black vomit. This is probably the first case which was recognized as yellow fever; and the first officially-recorded case of the disease is that reported on the 2d of September by the same gentleman, the physician in charge of the City Hospital. This patient was admitted to that institution very ill with yellow fever; had evidently been sick several days, and died on the third. Cases now began to multiply in other portions of the city, and on the 14th of September the disease was declared to be epidemic. The sanitary condition of the city beggars description. One of its daily papers makes the following comments:

We have no system of sewerage in Memphis, and the necessary consequence is that the filth of the city is left to take care of itself. Our sanitary police consists, for the most part, of some half dozen of the

chain-gang, who occasionally do little more than emancipate the confined odors of the kennels of Main street, and give wings to imprisoned effluvia. Our alleys and obscure streets are left to the rag-pickers, to porcine and canine scavengers, to cleanse them of their superfluous foulness, and were it not for the rains of pitying heaven would of themselves give abundant employment to our undertakers and grave-diggers. And yet these are the least of the objectionable features touching the violation of the laws of hygiene in Memphis. Nearly every family in the city is dependent upon a cistern for its supply of water; nearly every cistern is in the same yard, in close proximity to, and generally in a direct geographical line with, the privy. No intelligent man need be told of the percolative and absorbent qualities of the earth, and no Memphian need be reminded of the difficulty of finding cistern water in the city free from the impurities of animalculæ induced by decomposition. The train of evils following these disagreeable truths will suggest themselves to the intelligent reader without further elaboration. The great question with us now is to apply the remedy, and no time is better to awaken the community to a proper sense of the situation.

The community finally awakened by the disease reorganized its Board of Health on the 8th of October, nearly two months after the fever was first introduced. It was, however, too late for such efforts as could then be made, and the pestilence continued to rage not only until the long-looked for first frost, but even after repeated frosts and solid ice had been formed.

Eighteen hundred deaths occurred in seven weeks, out of a population reduced to twenty thousand by flight, and of this number a large community left every evening for homes in the country.—(Frankland.)

Dr. D. D. Saunders, who remained in the city during the epidemic, calculates that out of the remaining population, say 15,000, who slept in the city, about 7,000 had the fever, and of this number 1,800 died, or about 25.7 per cent. of those afflicted. But another writer (Cochran) claims to have seen a list of the deaths containing 2,000 names, which would give a mortality of nearly twenty-nine per cent.; and the reporter was assured by physicians, officials, and intelligent citizens of Memphis, that even this is below the actual number, since no deaths prior to September 14 were officially published as from yellow fever.

The disease is known to have been carried by the refugees to Wythe, where there were six cases; to Humboldt, where there were three; to Brownsville, where there were four; to Huntsville, Ala., where there were three cases with one death; to Grand Junction, where there was one case; to Corinth where there were three cases; to Holly Springs, where there were several; and to Louisville, Ky., where there were ten cases with five deaths; but at none of these places did the disease spread.

It would only be darkening counsel to repeat the various statements, made to the reporter in the following spring, of deaths in June and July of residents, some among them prominent citizens, from a disease claimed to have been in all respects identical with that which came to be known as yellow fever in September; for even if it be admitted—it cannot be proven—that such cases were sporadic indigenous yellow fever, it still remains clear that the disease which subsequently became epidemic is directly traceable to the cases brought by the ill-fated *Bee*.

Shreveport, La.: August 12—November 10.

Upon the outbreak of the fever on the steamers *Belle Lee* and *W. S. Pike*, at New Orleans, in the middle and latter part of July, some of the men who were engaged on board these boats left them and shipped on the Red River packets plying between New Orleans and Shreveport, navigation at that time being very good.^(a) On the 12th of August, according to Dr. Fenner, occurred the first case of yellow fever, of which he gives substantially the following details: Newton Walker worked and slept on the levee in a store which was closed, the firm having gone into liquidation; took his meals next door in an eating and lodging-house, a common resort of the lower class of boatmen, and of that class alone. Being unwell, he went to his brother's house, two and a half miles from town, where he was attacked with fever on the night of August 12; was much prostrated after the subsidence of the fever, turned yellow, and sent for Dr. F. about the 18th, to prescribe for "jaundice." At the time it was not suspected that this was a case of yellow fever; but two children who had not been away from the house were taken sick about the 25th, and died at the end of the third and fourth days, respectively, with all the well-marked phenomena of yellow fever, and the whole family subsequently sickened, and five or six died. On the 15th of August three boatmen were received into the Market-Street Infirmary, of which Drs. Allen and Fenner were the physicians, and although their suspicions were then aroused, yet with the natural reluctance to admit the existence of the dreaded disease, these cases were diagnosed as remittent fever; a diagnosis which, although the men recovered, was subsequently modified upon the development, on the 25th of August, of two cases of pronounced yellow fever in a private family across the street, and one case in Dr. Fenner's own house immediately adjoining the Infirmary.

During all this time cases of fever, variously characterized as "remittent," "pernicious remittent," "malignant," "congestive," &c., were

^a MS. Report of Dr. D. P. Fenner, dated January 12, 1874.

multiplying, and the mortality rate was increasing, when, on the night of the 19th of August, it was announced that three men had fallen dead in front of the Mechanics' Exchange, on Texas street. From subsequent inquiry, it was ascertained that these men had been wandering about sick, and two had laid down there and died, the other expiring before he could be got to the hospital. On the next day, August 20, the first deaths from yellow fever were recorded—Frank McNally and "one unknown found dead on the street." On the 21st there was another death, on the 22d four more; and cases, hitherto diagnosed as above but now recognized as yellow fever, developed on Texas street in and around the boarding-houses frequented by steamboat men, and the disease spread with remarkable rapidity from these centres, so that in about ten days it was epidemic almost throughout the entire extent of the town.—(Fenner.) A general exodus followed, which reduced the population from an estimated number of ten or twelve thousand to about forty-five hundred by the middle of September. Of this number, the best judges estimate that at least three thousand were attacked, and the mortuary records give 759 deaths, of which 639 were whites and 120 blacks. On the 20th of October the first frost occurred, and this was succeeded, in a few days, by weather cold enough at night to make ice of some thickness. The disease thence began to decline and continued abating from day to day, until, on the 20th of November, it was declared safe for absentees to return to their homes, the last death occurring on the 10th of November. As showing the malignancy of the disease, it is recorded that a large number of the inhabitants who had had yellow fever in 1867 were again attacked during this epidemic, and, although such cases were generally milder, a number of deaths occurred among them. Further: quite a number who had had the fever in 1853, and who had passed unharmed through the epidemic of 1867, were attacked this year, and some died.

Concerning the sanitary condition of the town the testimony is uniform, both from medical and secular witnesses, that, even in the midst of winter, the accumulated filth in the alleys of the city, which intersect the blocks, began to be offensive; spring came and passed, and there, untouched, lay the accumulated filth of many months, in the almost tropical sun of summer, in the very heart of the city. The most public thoroughfares of the city were neglected and uncleaned; stagnant water, rotten garbage, and animal excrement filled the gutters; the refuse of hotels and boarding-houses in every portion of the city ran out of the private sewers into the streets, and there rotted, and

contaminated the atmosphere; dead dogs, cats, and rats remained where they had fallen, and the streets and alleys became their cemeteries. The whole city is said to have been continuously enveloped in a disgusting odor. During the summer, the daily press continued to urge the condition of the city upon its officials. Their attention was called to the fact that cerebro-spinal meningitis, cholera, and small-pox were all over the country; that the summer was evidently an unhealthy one; and, finally, they were warned that unless measures were taken to cleanse the city, it would be stricken with a pestilence. That prediction was fulfilled; but its lesson has not been wholly lost. Already a substantial improvement has been effected in many respects, though much yet remains to be done in the direction of thorough drainage, sewerage, and policing, and the provision of a proper water supply. During this year (1874) the death-rate has been unusually low and the general health of the city exceptionally good—facts which, however, it is not pretended to claim as the direct results of any change yet accomplished in the sanitary conditions. These will produce positive effects slowly; while the present reduced death-rate and improved health are, in large measure, due to the carrying off by the epidemic of numbers of the debilitated and sickly—victims of imperfect hygiene—who would in the absence of the disease, have remained over to employ physicians and undertakers during 1874.

Mobile: September 10—November 29.

Although a case of yellow fever occurred in Mobile as early as the 21st of August, the introduction of the disease, which subsequently became epidemic, dates from the arrival, on the 10th of September, of a man named Dixon, from the neighborhood of Shreveport, Louisiana. The first case, that of the 21st of August, was in the person of a machinist, who went to New Orleans on the 16th of August, returned to Mobile the following day, was taken sick on the 21st, and died with black vomit on the 26th. His attending physician pronounced it yellow fever. Dixon, who, on his way to Mobile, had spent one night in Shreveport, but passed through New Orleans without stopping, was sick on his arrival, on the 10th of September, but the same evening went across the bay, and, returning the following morning, was found under an old shed on the steamboat wharf by a policeman, who conveyed him, by order of the city physician, to the hospital, where he died on the morning of the 13th of "unmistakable and malignant yellow fever." On his way to hospital he was supported in the conveyance by the policeman, who was taken sick on the 15th, but

recovered, as did also his son, who was taken sick on the 18th. Dr. Jerome Cochran, who has published an elaborate memoir upon the yellow-fever epidemic of 1873, has collected reports of two hundred cases and thirty deaths occurring in the city; and of these, he states that the source of infection was traced in one hundred and thirty cases, and always, directly or indirectly, to this Shreveport case.

A watchman on a steamer lying at the end of the wharf from which Dixon, the Shreveport case, was taken, assisted in placing this man in the hospital ambulance, and was admitted to the marine hospital, suffering from what was recorded as intermittent fever. Dr. Crampton, the physician in charge, states that he had chills before his admission and subsequently on the 12th, 13th, and 14th of September, "after which, his fever became continuous, and the complication of another disease, yellow fever, was recognized. * * * This was a typical case of the existence of two distinct morbid poisons operating at the same time in the system. After a severe illness of seventeen days, and the occurrence of black vomit on the third day of the fever, reckoning from the date of its recognition, this patient made a fair recovery." Six other cases were reported as having occurred in this institution, with one death. In the City Hospital, where Dixon was carried, there were eight cases, all of which originated therein, none other being admitted from outside. Of this number, five died and three recovered. Four cases occurred in the Providence Infirmary, with three deaths. The first case in the person of Sister Regina, who, visiting those of her community at the City Hospital almost daily, (Gilmore,) was taken sick on the 15th and died on the 18th. These three buildings are contiguous to each other, and, together with the house of the policeman above referred to, on Spring Hill Road, a few hundred yards south of the City Hospital, became the centres of the infected belt, although scattering cases occurred in other portions of the city. As has been noticed elsewhere, both in this and in previous epidemics, the prisoners in the jail escaped the disease. This building is situated on the same block as the City Hospital, but separated from it by a high brick wall.

With one exception the sanitary condition of the city was excellent, and the season had been healthy to an almost unparalleled degree.—(Gilmore.) The exception noted was that of the mode of disposing of the night soil, dead animals, and garbage of the city. This is carted to a place outside of the city limits, about three miles from the river, called "Smith's dumping-ground," a place of unfragrant reputation, where dead animals and the contents of privy-vaults are transformed

into commercial fertilizers.—(Cochran.) In this neighborhood there occurred ten cases with five deaths; and whether, as Dr. Cochran suggests, from the emanations arising from these deposits or from some other cause, the cases occurring here were exceedingly malignant, as the rate of mortality, 50 per cent., sufficiently shows. An Advisory Board of Health was early established, and about the middle of September systematic disinfection was begun. The infected district was completely encircled with a cordon of carbolic acid, applied by means of a watering-cart, and the apartments and premises, where cases of the fever occurred, were thoroughly disinfected. Whether as the result of this disinfection or not, the disease, although occurring in seven widely remote localities outside of the infected district, was confined to the small area above noted. On this point the Advisory Board say:

We will commit ourselves to nothing relative to the virtue of the agents employed as destroyers or modifiers of the yellow-fever poison or germ until further experience demonstrates its undoubted efficacy. We regard this animalcular notion of disease as an offspring of the materialistic philosophy that has so largely taken possession of the human mind during the last thirty years, and look upon its truthfulness with great misgivings and doubts. The practical point in the application of the disinfectants is, that it must come in contact with each germ or animalcule to be distinctly efficacious, and it is believed by the New Orleans Board of Health that carbolic acid must be volatilized to reach each germ, and even then some of the germs may escape and others are only weakened. Cold is the only positive destroyer of the yellow-fever poison. It is thought that superheated steam would be equally as efficacious, but it is impossible of application by any appliance that we as yet possess, and can never be used except in close rooms. A high local sanitary condition, and an efficient quarantine, gives us our only safety that is undoubted and reliable.

Minor Places.

In addition to the cities of note above given, the disease appeared at Cairo, Ill., Greenwood, La., Calvert, Texas, Montgomery, Ala., and Forts Barrancas and Jefferson, Fla.; as well as at many suburban villages in the neighborhood of the larger cities whither it was carried by refugees.

Of these outbreaks the most important were at Montgomery and Calvert; about five hundred cases, according to Dr. R. F. Michel, in a remaining population of about 1,800, occurring at the former place, with a mortality of one hundred and eight, or over twenty per cent. of those attacked. Dr. Herron's narrative of the epidemic at Pensacola sufficiently shows how the disease was introduced into Montgomery; but, as illustrating the futility of spasmodic disinfection and intermittent attempts at sanitation, Dr. Michel's remarks may be here quoted:

“For two months prior to the visit of yellow fever, we had been imminently threatened with asiatic cholera. Two of the cities of the State, Huntsville and Birmingham, were being then seriously damaged by the havoc of that rapidly fatal disease. Indeed, one case absolutely made its way into our capital, but, fortunately for us, did not take root. In consequence of this condition of affairs, our city authorities worked hard, and worked well, to fend off the threatened invasion; and, with credit to them be it said, they were absolutely successful.” Successful, that is to say, so far as one disease was concerned; but what must have been the vital condition of a community of which nearly a third were stricken down by another disease in little more than five weeks?

Into Calvert the disease was introduced on the 3d of September, by a young man named Hughes, fleeing from Shreveport; was taken sick on the 5th, and died on the 10th with black vomit. Dr. W. L. Coleman, who first recognized the disease and was treated as Benjamin Rush was in 1793 for announcing the fact, gives a shocking picture of the condition of the town and of the indifference of the inhabitants to all warning. When the disease was finally acknowledged, the usual stampede occurred, and by the latter part of October, only six or seven hundred persons remained out of the usual population of 1,500. Of those remaining, Dr. Coleman estimates that four hundred and fifty were attacked, with at least one hundred and twenty-five deaths, exclusive of those who fled the place and were attacked and died elsewhere. The first frost was near the end of October, but it seemed to have no effect whatever on the progress of the epidemic. The material was indeed nearly consumed, but fifteen cases subsequently occurred, eight of them among returned refugees and new-comers. There were several frosts in November, but these also seemed not to lessen the virulence of the infection. The last case, a returned refugee, was taken sick on the 20th of December, and died on the 29th.—(Cochran.)

To Shreveport is also attributed the cases of the disease occurring at Greenwood and Cairo; at the former place by two young men, sons of a resident of Greenwood, but who had been employed at Shreveport and left there on account of the fever, on the 28th of September. One fell sick the following day and died on October 3, with black vomit; and eighteen other cases, with three more deaths, followed.—(Leary.) At Cairo, Dr. Horace Wardner records the reception of yellow-fever cases on September 1, 10, and 24, from river steamers carrying cotton direct from Shreveport and Memphis. In all, about forty-three cases with seventeen deaths occurred, the cases being confined to persons employed about the levee and in the construction of a new wharf for

the Illinois Central Railroad Company. Quarantine was established, but not until the arrival of the third instalment of fever patients on the 24th September.

The outbreaks at Forts Barrancas and Jefferson were among the troops at those posts, and resulted in twelve cases with three deaths at the former, and twenty-five cases with thirteen deaths at the latter place. Dr. G. M. Sternberg, Assistant Surgeon U. S. A., in his report to the Surgeon General on the disease at Barrancas, agrees substantially with Dr. Herron in his account of its introduction; and, incidentally, illustrates the difficulties in the way of an "impregnable quarantine," even of a small body of troops, backed up by "the exercise of absolute and relentless military authority." Of its origin at Fort Jefferson there is some doubt; Dr. Jos. Y. Porter, Acting Assistant Surgeon, U. S. A., who was on duty with the command and in charge of the hospital until September 10, up to which time there had been fourteen cases and three deaths, attributing it to germs surviving from previous seasons in a mass of old decayed buildings, rubbish, and filth of different kinds, adjacent to the fort. Dr. H. E. Brown, Assistant Surgeon, U. S. A., who arrived at the fort on the 6th of September, considers that the disease was imported into the garrison, by the little son of a Dr. Gould, who had visited Key West on the 9th of August and returned on the 11th, (Porter,) or 13th, (Brown,) and was taken sick on the 11th, (Porter,) or the 16th, (Brown,) with what was pronounced by the attending physicians, Dr. Gould, the father, and Dr. Porter, to be bilious-remittent fever, but which Dr. Brown considers was a mild form of yellow fever, contracted by the boy at Key West. Even if this latter hypothesis be correct, it is difficult to see what kind of a quarantine short of absolute non-intercourse with any person, place, or thing that ever had been visited by yellow fever, could have been effectual, since Key West at that time, and throughout the entire season, was declared free from yellow fever.

CONCLUSIONS.

It is believed that the following practical conclusions are warranted by the existing state of knowledge concerning yellow fever:

I.—That in the Western Hemisphere, certain poison-germs—the nature of which is yet unknown, but whose introduction into the human organism is necessary to the production of yellow fever—originate spontaneously in most, if not all, the West India Islands, at least, as far north as Nassau, New Providence, in latitude $25^{\circ} 5'$ north, Key West being in latitude $24^{\circ} 33'$.

II.—That such germs, if not exposed to a temperature below 32° Fahrenheit, or to the chemical action of certain agents, may retain their morbidic potency for an unknown period in the holds of vessels, in storehouses, clothing, bedding, in masses of decaying animal and vegetable matter, and in soil containing such matter; and that such potency may be rendered active under favorable conditions, to wit, atmospheric exposure, moisture, and a temperature of 70 to 80° Fahrenheit.

III.—That, while it is not proven that these germs ever originate on United States territory—separated by only a few hours' sail from many of the islands where the disease is indigenous—it is known that they have survived the winter climate as high as latitude 30° north, under the conditions above recited, and have thus originated the disease exclusive of direct importation.

IV.—That from the foregoing conditions, viz., proximity and wide extent of original sources of the germs and their prolonged retention of morbidic power, a quarantine of exclusion is impracticable and a quarantine of detention is useless.

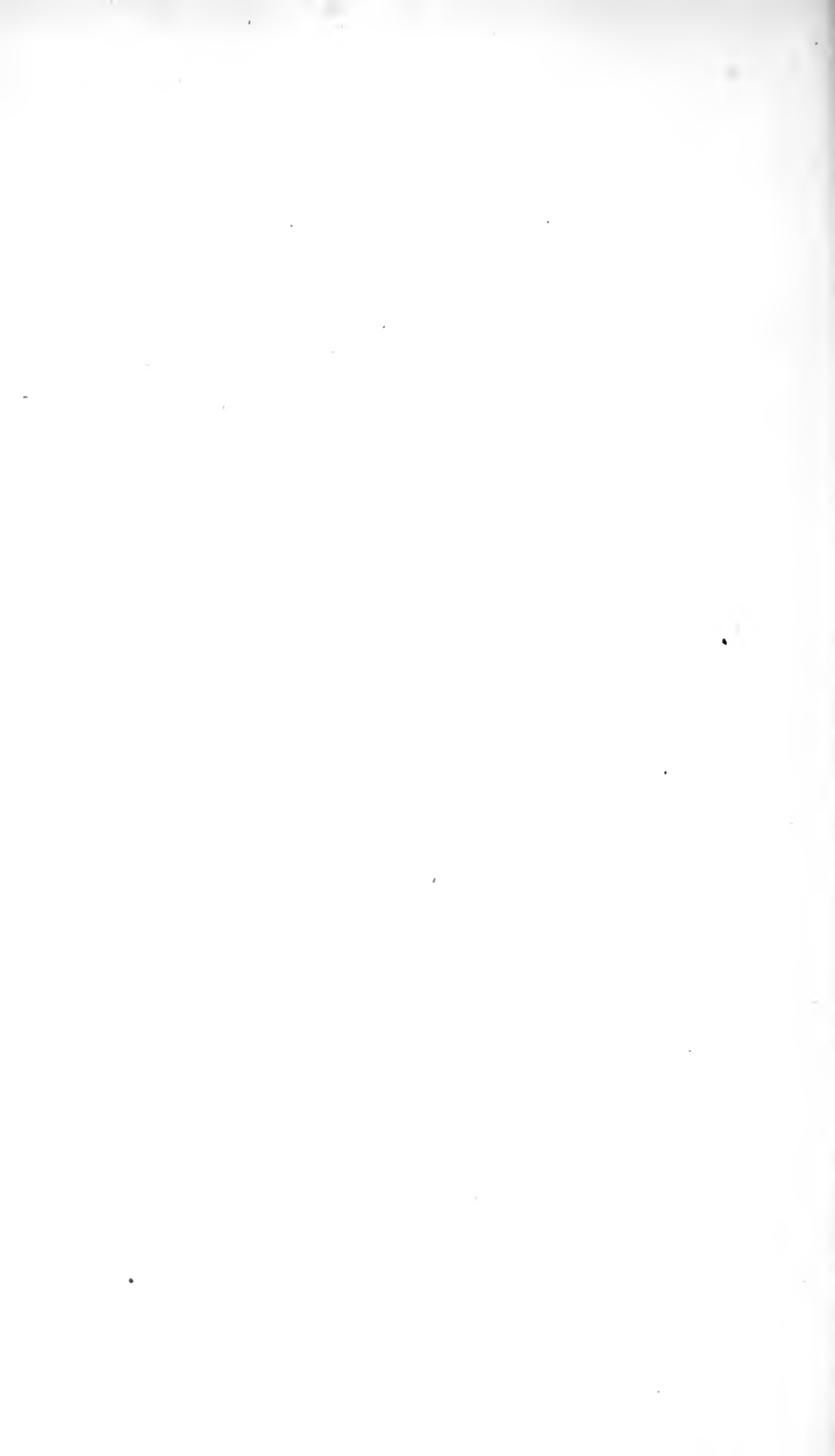
V.—That immunity from yellow fever in the United States is attainable only through the most thorough sanitary measures, embracing—(1) the destruction of germs on shipboard, as well in the personal effects of passengers and crews, as in cargo, hold, and bilge, such destruction either by artificial frost (systems of Peteler and Strebe) or by chemical action; (2) the prompt isolation of each case as it appears, and the same treatment of possible germs from such cases, in bedding, &c., as above indicated; (3) a revolution in the sanitary conditions of water-side precincts, over which the board of health should have more complete authority than over other portions of the city.

It may finally be added that in the absence of other adequate cause, the gradual narrowing of the yellow-fever zone in the United States during the past fifty years—say from the time when leases in New York City contained a provision for reducing the rate of rents in the event of a depression of business from the advent of cholera or yellow fever—may be fairly claimed for the sanitarian and his efforts; and that in such efforts lies all there is of promise for the future in dealing with yellow fever.

Summary of Yellow-Fever Epidemic of 1873, showing the Localities, Dates of first and last Deaths, Number of Cases, Total and Proportionate Mortality.

Locality.	Date of first case.	Date of last death.	Total number of cases.	Total number of deaths.	Mortality per cent. of cases.	Remarks.
New York, N. Y.....	May 23	Oct. 30	69	18	26.1	Sixty-two cases removed from vessels at quarantine. Two cases reached the city by land.
New Orleans, La.....	July 4	Nov. 18	388	226	58.2	Origin of first case obscure. Number here given only those officially reported. Total cases estimated 2,000.
Pensacola, Fla.....	Aug. 2	Nov. 19	600	62	10.1	Attributed to a vessel after 23 days' quarantine, and a month after release.
Memphis, Tenn.....	Aug. 10	Nov. 19	10,000	2,000	20.	First cases landed from a New Orleans tow-boat. Not checked by heavy frosts.
Shreveport, La.....	Aug. 12	Nov. 10	3,000	759	25.3	Weight of evidence in favor of its importation by water from New Orleans.
Montgomery, Ala....	Aug. 17	Nov. 10	500	108	21.6	Imported from Pensacola.
Mobile, Ala.....	Aug. 21	Dec. 1	210	35	16.6	No spread of disease from first case, contracted in New Orleans. Epidemic local, initiated by migrant from Shreveport. New cases after frost.
Fort Jefferson, Fla...	Aug. 24	Oct. 6	25	13	52.	Among United States troops.
Cairo, Ill.....	Sept. 1	Sept. 25	43	17	30.5	Brought by river steamers from Shreveport and Memphis.
Calvert, Texas.....	Sept. 5	Dec. 29	450	125	27.7	Imported from Shreveport; very malignant. Not checked by frost.
Fort Barrancas, Fla..	Sept. 26	Nov. 12	12	3	25.	Among United States troops.
Greenwood, La.....	Sept. 29	Oct. 29	18	4	22.2	Carried from Shreveport.
Minor places.....			95	27	28.4	"Minor" as to number of cases, but embracing Louisville, Ky., Humboldt, Tenn., Corinth, Miss., Huntsville, Ala., and other places to which the disease was carried by refugees from epidemic centres, mentioned in the narrative.
Totals.....			15,410	3,397		
Average mortality per cent. of all cases.....					22.04	

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